SOAP

OCTOBER 1937

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It KILLS

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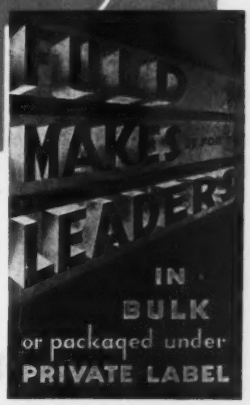

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702-710 SOUTH WOLFE STREET

Manufacturers of Sanitary Chemicals
Exclusively for the Jobber

BALTIMORE MARYLAND

SOAP

Volume XIII
Number 10

October, 1937

Contents

SANITARY Products Section, which is included as a department of every issue of SOAP, begins on page 75. Production Section begins on page 61.

Published monthly by

MAC NAIR-DORLAND COMPANY, INC.
254 WEST 31st STREET NEW YORK, N. Y.

Subscription rate, $3.00 per year. Foreign, including, Canadian, $4.00. Copy closing dates—22nd of month preceding month of issue for reading matter and 10th of month preceding month of issue for display advertising. Entered as second-class matter, April 11, 1931, at Post Office, New York, under act of March 3, 1879. Mail circulation, September, 1937, issue, 3,744 copies. Total distribution, 4,000.

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HOWEVER

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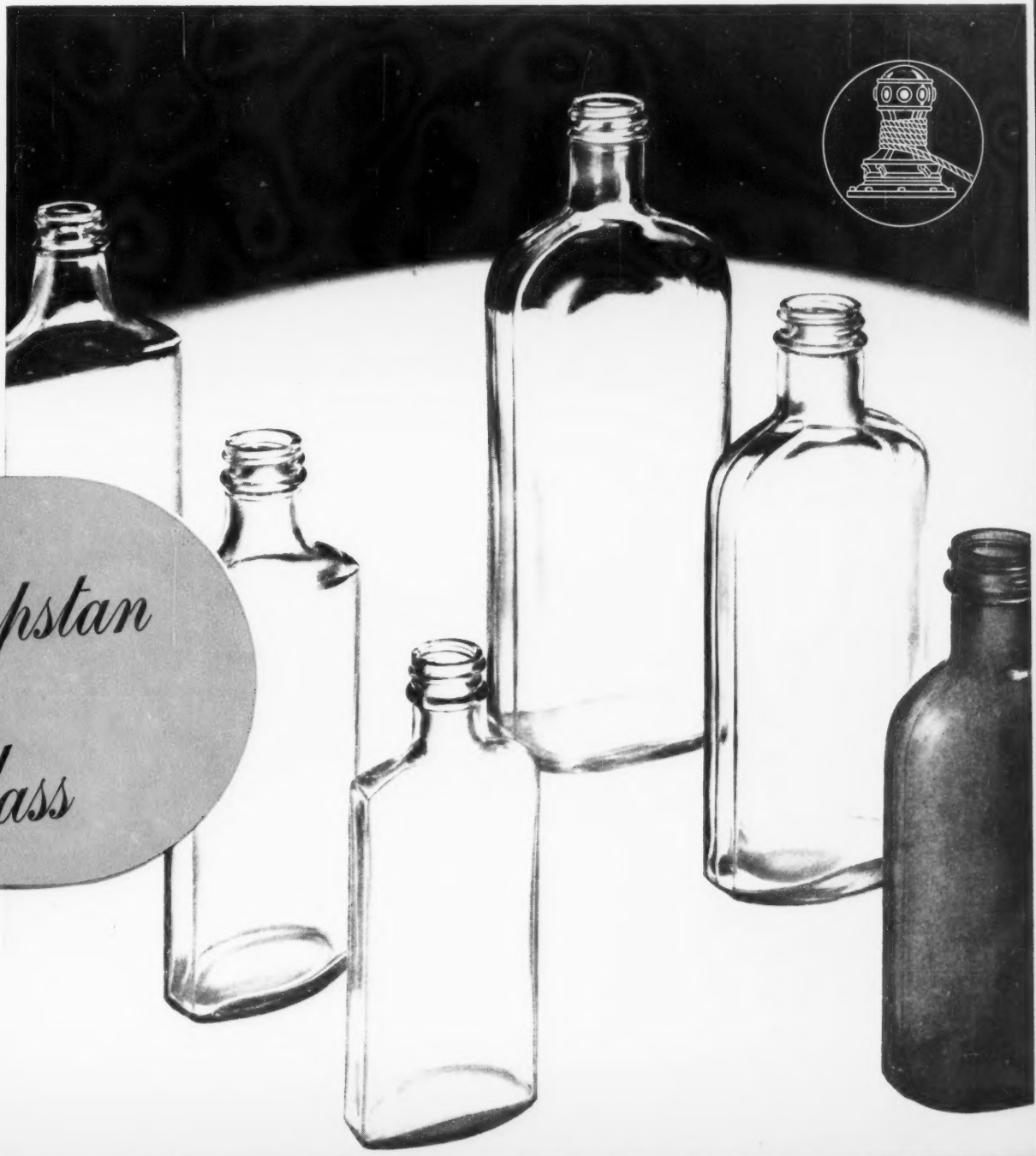

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for S&S packaging equipment

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CONTROLLED PRODUCTION: From start to finish, from raw materials to finished goods every operation in the Allied plant is under rigid control. This constant vigilance eliminates guesswork . . avoids waste . . saves you money.

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Men who represent A. B. P. publications have a specialized knowledge that can help you steer a true course to advertising economy and maximum sales results. They are more than "space peddlers". They would rather hear about your sales problems than extol the virtues of their publications, for only then can they be of genuine help, whether the solution indicates their own papers or not. And you can be sure that they will respect your confidence.

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2. To determine market potentials.
3. To suggest product or package changes.
4. To help you select and reach your prime prospects.
5. To help plan sales and advertising strategy.
6. To aid in improving sales and distributive setup.
7. To help you see your business as business sees it.
8. To scan copy for trade jargon.
9. To suggest new products, or new markets for old products.
10. To suggest ways to make sales promotion more effective.
11. To help devise practical merchandising material.
12. To point out specific sales opportunities.

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ABP

Authentic facts relating to editorial scope and readership analysis

"SOAP" . . . published by MAC NAIR-DORLAND CO.

254 WEST 31st STREET, NEW YORK

Save money with H-S

..same sudsing power-less cost!

H-S permits the use of less fatty acids by increasing silicate content—saves money!

H-S maintains sudsing power equal to higher grade soaps—no sacrifice of quality!

H-S has proved its economy—records show savings of ½¢ a pound or more!

H-S can be added to Standard Silicate by a simple mixing process. In addition to its soap-saving action, it improves the appearance of your product. Our technical staff will help you meet competition with HS. Write!

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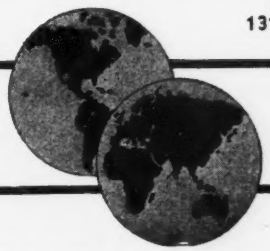

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EYE RAISING QUALITY

BETTER SUDSING is what users of soap expect today. Give it to them in your brands easily and profitably with P. Q. Silicate of Soda.

P. Q. Silicate improves the washing power of soap, and yields more pounds of saleable product (bars or flakes) for each dollar's worth of material added to the crutcher.

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P. Q. SILICATES OF SODA

PHILADELPHIA QUARTZ CO.

PHILADELPHIA

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Works: Anderson, Ind., Baltimore, Md., Chester, Pa., Buffalo, N. Y., Kansas City, Kans., Rahway, N. J., St. Louis, Mo., Utica, Ill.

ESTABLISHED 1831

Please send Bulletin No. 1, P.Q. Silicates of Soda in Soapmaking.

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*City*_____ *State*_____

PQ

REG. U. S. PAT. OFF.

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AMYL SALICYLATE
AUBEPINE LIQUID
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METHYL IONONE
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PHENYL ETHYL ACETATE
PHENYL ETHYL ALCOHOL
RHODINOL
RHODINYL ACETATE
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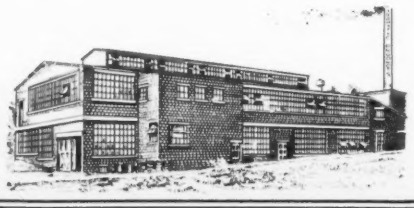

AROMATIC PRODUCTS, INC.

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Superior Rosins Make Superior Soaps

Hercules Pale Wood Rosins help to make soaps that lather freely in soft or hard water, that emulsify dirt and enhance the washing qualities of the finished product.

The cleanliness, uniformity, and inherent bright color of Hercules Pale Wood Rosins enable the soap maker to obtain the most satisfactory results.

We recommend Hercules grades I, K, M, and N. Return the coupon for prices and samples.

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Pale Wood Rosins

Pale Wood Rosins

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Please send samples of I ☐, K ☐, M ☐, N ☐ Hercules Wood Rosin, further information, and prices.
(Check grades in which interested.)

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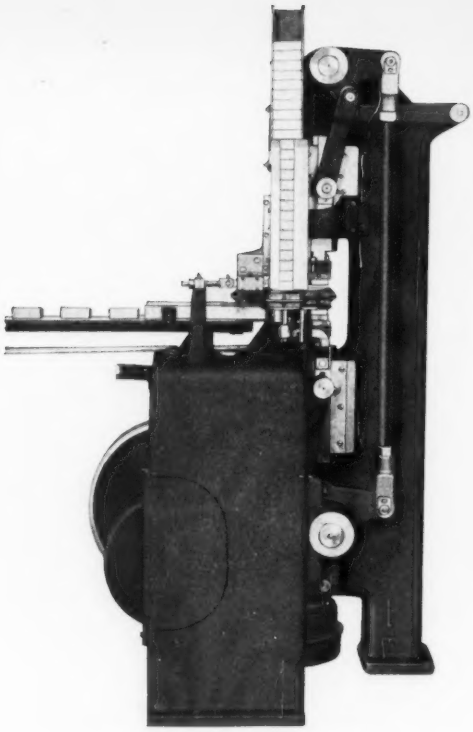
Company

Street

City State GG-20

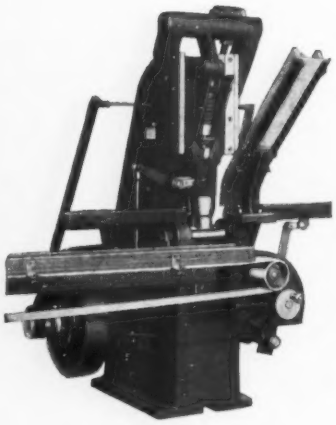
. . . cut soap pressing costs!

. . . less wear and tear on dies, meaning fewer die repairs and fewer replacements . . . greater output . . . perfect pressing without marred cakes . . . smaller power consumption . . . no noise or vibration . . . these are a few of the reasons why smart soap makers are replacing older models with the new toggle type



Type ET Toilet Soap Press

JONES SOAP PRESSES



TYPE G

Toggle Operated
Press for Pin Die Work

. . . which give a much finer appearing, and a more saleable cake of soap . . . the long dwell of the dies on the new toggle press means a beautifully finished cake impossible to produce on the older models . . . modernize your soap pressing and cut your costs at the same time with new JONES PRESSES.

JONES PRESSES are used the world over . . . every hour of the day . . . and night . . . they are working somewhere.

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The Standardized *Constant Motion Cartoner* packages, bottles, jars, tins, collapsible tubes and many other articles. It feeds, folds and inserts direction sheets and corrugated board liners with the loads.

As the editor sees it....

SAD sometimes are the endings of forays into the field of business and industry,—which reminds us of the case of a small manufacturer of soap specialties who recently was forced into bankruptcy. During the few years in which this manufacturer made and sold his products, he was a thorn in the side of soap makers in all parts of the country. His specialty was to cut prices, and show up his competitors,—and incidentally make a hit with buyers here and there, especially buyers who still believed in Santa Claus and also believed that one manufacturer could consistently undersell all others and still deliver the goods.

This manufacturer not only embarrassed those with whom he locked horns in direct competition, but by quoting absurdly low prices all over the country via the penny-postcard route, he made his influence felt far and wide. He convinced many a buyer that other suppliers of soaps were emulating the great Jesse James, only minus gun and mask. He tendered to us for publication an advertisement quoting prices on certain products which were far below the level of the then prevailing market. We turned down his copy,—which he knew we would do before he sent it to us. And this gave him his opportunity to raise a great hue and cry,—how he was giving buyers a break with low prices and SOAP had refused his advertising. He flooded the country with circular mail and tried to cash in on the fracas. Apparently, any increase in business which he may have enjoyed did not carry with it enough profit to perpetuate the business for any great length of time.

Destructive price cutting has always been, and still is, a poor foundation upon which to establish a business. The fact that the demise of this particular firm was predicted over two years ago by several competitors is beside the point, but it does prove that they could well see the only end in sight,—bankruptcy. A few other firms in the soap specialty business might well take this to heart today. Nobody can consistently undersell all competitors for long and still stay in business.

A NEW fish oil hardening plant of rather large proportions is soon to be erected on the Pacific Coast. This move in itself is not significant. Off hand, it appears to be merely a step to fill a need for a larger domestic supply of hard fats,—a venture, which in the present oil and fat situation appears altogether logical and one which should be profitable. However, the fact that this plant is to be erected by one of the large American chemical manufacturers as an outlet for its surplus hydrogen, is very distinctly of significance. Such a plan marks the first move of a unit of the chemical industry into the field of oils and fats. It marks a move to utilize by the producer by-product electrolytic hydrogen, which heretofore has been wasted. That other chemical manufacturers may follow this example, is evident.

The possible effects of an expansion of oil hardening operations as a result of chemical manufacturers entering the field, are several. A larger supply of hard fats might follow, which development would be of very considerable interest to soap makers. The manufacture of stearic acid from animal fat, already the victim of a body blow from hardened fish oil competition, would unquestionably decline still further. In fact, while domestic fish oil producers would bask in the sunshine of a better market at higher prices, the effects on the tallow market might

be just the reverse. All in all, this new venture on the Pacific Coast is going to be watched with keen interest by oil, fat, and soap people alike. For all we know, it may be the first movement of a new trend in fat production.

FROM the production of hardened fat by chemical manufacturing interests, it is but a step to the soap and detergent field. That any of the large chemical companies might go into soap manufacture is unlikely. That they might expand into the field of non-soap detergents, is a horse of another color, and altogether possible. For some years past, the fear that the strong future competition for the soap maker would come from developments by chemical manufacturers, has been evident among soapers. Those with greater foresight have been preparing for eventualities in this direction by edging into the synthetic detergent business themselves, or by getting set to go in if and when the situation might warrant such a move.

As yet, synthetic detergents are of little importance in the household market, although in textile processing, they have made much greater progress. That their potentialities in the world of detergents is great, must be acknowledged by anyone who has viewed the chemical progress of the past twenty years. A revolution in the business of detergents may be just around the corner,—and it may be many years away. But, we are told, it is bound to come eventually,—and when it does, it will not emanate from the soap industry.

THE Miller-Tydings Fair Trade Law, we note with interest, is being hailed hither and yon as opening the road to better business and better profits, not only for the dealer and jobber, but for the manufacturer as well. We read that a recent survey of buyers for certain department stores, chains, and others, revealed eighty per cent of them in favor of the provisions of the law. Maybe it is a good law, and maybe it is doing a lot of good in certain channels of commerce. Frankly, we do not know enough about the actual effects of the law's operation to hazard an opinion. We sincerely hope it is doing some good somewhere. However, we have always been somewhat skeptical, — and still are, — of attempts to legislate goodness, honesty and fair-dealing into business transactions,—or to eliminate price-cutting by the same method.

AT a recent meeting of cosmetic manufacturers, the head of a well-known firm in that field urged the industry to clean house in anticipation of coming legislation. That this warning is well-timed for numerous industries, is admitted. A clean house in anticipation of a rigid inspection, is always a good idea. However, we doubt that warnings of this kind have much effect in getting house cleaning under way where the clean-up is most needed.

As a general rule, the more prominent manufacturers in any line of business are not the chief offenders. This is not true in all industries or in all instances, but it is usually the case. Checking from time to time through the list of firms who are cited by the Federal Trade Commission, or by the Food & Drug Administration, we find that over ninety per cent are those which have rarely been heard of, mostly smaller, lesser-known organizations. To find a well-known company among those whose products or practices are under fire, is the exception rather than the rule.

So of what avail is it to warn those who are not the chief offenders, to clean up? There always seem to be a hundred and one new offenders ready and willing to do their part to give almost any industry a dirty appearance. It is our guess that most of them overstep the mark deliberately and knowingly, and get away with it as long as they are not stopped by the law. Warnings to this group of chronic and flagrant offenders are usually just so much wasted breath. The only effective warning appears to be a law with sharp teeth.

Liquid Shampoos

Some short-cuts and side-lights on methods and materials used in the manufacture of liquid coconut oil shampoos discussed

By Ralph H. Auch

IN spite of some inroads which have been made in the past few years by the so-called soapless shampoos, regular liquid soap shampoos continue to constitute an overwhelming percentage of total shampoo sales. The use of sulfonated oil mixtures and other soapless shampoos has increased, principally in areas where hard water has been a drawback to the use of ordinary soap shampoos. Particularly, has a brand of sodium lauryl sulfate solution attracted much attention of late in the shampoo market. Nevertheless, the bulk of the American population which uses shampoos, is using one form or another of liquid soap solution. And this discussion has to do with their manufacture, clarification, and packaging.

Before going into the manufacture of the soaps from the basic oils, a few ingenious methods of short-cutting, and the reasons for them, may be mentioned. Small manufacturers, who insist upon making their own shampoo base, and small cosmetic firms who do not have a suitable steam supply available, and who balk at the outlay for necessary equipment, or who lack technical skill for proper control, are the ones who resort to short-cuts chiefly. Strikingly enough, some of their products are quite often passing fair to even good.

A method sometimes used is the saponification of the fatty acids of coconut, olive, or other oils with potash lye and carbonate. Where the carbonate is used, there is little need for technical control. The carbonate solution is added until effervescence ceases and then a deliberate excess is

run in. Of course, the saponification of a fatty acid with carbonate is an operation which requires considerable care, and a reaction which frequently gets away from the unwary operator with the result that the kettle foams over and messes up the plant generally,—not to mention loss of materials.

The use of cold soap scrap that has been saponified with mixed lyes is sometimes resorted to in the making of shampoos, especially where such scrap is available at little or no cost. The scrap is heated with sufficient water to give a soap solution of approximately the desired concentration. Specially denatured alcohol to the extent of five or seven per cent with the desired perfume added, is then mixed in. Even colored scrap has been used in tar, amber, or other tinted shampoos. After the solution has been stored to settle, the clear liquid is decanted off and bottled. Permanent clarity is never obtained in a shampoo of this type, due no doubt to the high ratio of soda soap to potash soap in the scrap. Such a product is not to be recommended, and is only fit for the lower price markets.

Attempts to make a shampoo from a straight soda cold made superfatted soap have been noted, but it is so involved and the final results so questionable, that it is doubtful if the process is at all sound economically. An aqueous solution of the scrap is made, and sulfuric acid added, throwing out the fatty acids and the superfatting oil. The oily layer is separated and washed thoroughly. A potash soap is then made from this fatty mixture by saponifying with potassium carbonate and enough caustic potash to take care of the superfatting material which may be present. The question of unsaponifiable material in this superfatting portion may lead to difficulties, to clouding of the finished product, or to separation of fatty material on the surface. It is only in cases where cold soap scrap is a waste product which might otherwise find no use, that its utilization as a shampoo base is in anyway justified, and even then, perhaps it would be the better part of economy to discard it altogether.

Getting down to the practical manufacture of a real shampoo from coconut oil, or a coconut blend, and potash, it is imperative that the saponification be carried to completion. Any unsaponified oil will not only impair clarity, but will accelerate the development of off odors. Finishing has often been referred to as an exacting operation, even turkey red oil or dilute hydrochloric acid being recommended. Less heroic is the use of boric acid, the claim that clarity is helped being tacked on. Any number of methods of making shampoo have been advanced. An entirely workable one follows with specific suggestions for clarifying and packaging. It may be modified to suit conditions and equipment available.

A steam-jacketed clean iron kettle fitted with very slow horizontal agitation works best. The agitator should in no case break through the rotating wave of liquid or excessive foaming will result. An open and a closed steam coil may replace the steam jacket, but the batch on boiling becomes much more unwieldy. The kettle should be calibrated in gallons per vertical inch so that the total volume of the batch may be determined quickly at any level for purposes of adjusting the alkali or oils and for making the final dilution to the desired concentration.

The oil or mixture of oils is run into the kettle and if weighing is not convenient, then the batch may be based on a definite depth in the calibrated kettle. The temperature should be about 90° F. when the calculated potash lye, or mixed lyes, at 35 to 40 per cent concentration is added in a thin stream with agitation. As soon as jellying starts, to avoid a setting up, hot water may be run in to dilute the soap, but not below about 30 per cent anhydrous soap.

Some work this process at or near 40 per cent anhydrous soap. While this causes the saponification to proceed faster, the advantage is offset by having to allow more kettle room for dilution before running to storage tanks unless they are fitted for agitation. Accuracy of the routine analyses also suffers. Then too, they are slowed up by requiring a gravimetric instead of a volumetric sample.

The steam should not be applied until after the hot water addition. The boiling and agitation are continued until the saponification is complete as confirmed by analysis. After the final adjustment is made, at least two analyses should be run. After the first one, the boiling should be continued for fully half an hour and there should be no change in result on the second. This assumes free alkali in the batch and insures that there was no further oil to saponify.

A convenient quick final adjustment to approach neutrality is by adding the calculated amount of coconut fatty acid or oleic acid of light color and good odor. The perfume and color, if any, are added and the dilution is then made and the shampoo run to the storage tanks. Dilution should preferably be made with either distilled or softened water. (For a quick method of dilution to the delivery or packaging figure, see Auch, *Soap*, page 34, December, 1935, issue.)

VERTICAL round or square storage tanks of suitable size are recommended. Steel is satisfactory if kept clean, and if equipped with close-fitting covers. They should be of sufficient capacity to permit of settling at least four, and better six weeks of average draft. To eliminate storage for this period as well as facilitate complete saponification, the use of a homogenizer or colloid mill has been urged. Never having used either for this purpose, this suggestion is made without comment.

The tanks should be fitted with a series of staggered draw-off cocks at about six inch intervals starting at the bottom. In number, they will vary from 5 to 10 dependent upon the heighth of the tanks. By hooking the line to the filter on to the lowest cock found running

clear, it is unnecessary to wait until the tank is completely settled before using its contents.

To dodge the issue of clarity, amber, opal and blue bottles, as well as wrap-around labels have been resorted to. On the other hand, at least one manufacturer, conscious of the importance of a "high polish," no longer depends upon the eye and diligence of the operative. An electric eye is installed in the discharge line of the filter and if the liquid shows the slightest "haze" the flow is automatically cut off until the necessary remedial steps have been taken.

Ordinarily vacuum or gravity filters are unsuitable for shampoo work except for small volumes as neither permits of high enough pressure. A pressure filter of the cylindrical plate type in which the plates are stacked vertically works well. Paper pulp known as filter mass should be disintegrated in water then packed into the plates.

Diatomaceous earth is satisfactory as the filter aid. It should be carefully chosen for particle size so that it gives satisfactory clarity with the highest rate of filtration. A direct motor-driven centrifugal or rotary displacement pump may be used. It should be fitted with a pressure regulating valve having a by-pass of the discharge back to the supply tank so that the working pressure and capacity of the press are not exceeded.

Many ways have been advanced for clarifying liquid shampoo and keeping it clear. They are both mechanical and chemical. Chilling before filtration has its advocates and on most formulations, it is satisfactory. Real refrigeration systems are costly to install, and short-time chilling is valueless,—makeshift arrangements such as a coil in an ice and salt bath or the filter in a refrigerator will not do. The liquid should be held at or near 36°F. at least overnight or longer, then filtered cold, all of which requires refrigerating equipment.

As for chemical additions, casual perusal of the literature indicates that apparently ingredients to retard rancidity and cloudiness, lower the freezing point and eliminate sediment formation have all become confused. None of those tried has proven entirely satisfactory. The object in all likelihood is to form chemically complex soluble salts of such soda soaps and the potash soaps of the higher fatty acids as are present.

A workable method is to filter clear and then add sufficient pyrophosphate of soda i.e. $Na_4P_2O_7.10H_2O$, to maintain clarity. The amount required will be found dependent on the mixture of oils saponified, the thoroughness of saponification and of filtration, purity of water used for dilution and the final concentration of anhydrous soap. The quantity of this salt required will, on experiment, be found to lie between one-half and three per cent. The crystalline material may be replaced by its equivalent of the anhydrous salt.

If the shampoo is slightly on the alkaline side as it should be, this addition will effect the pH little, if at all. Lathering properties are improved, as is free rinsing. On most formulations, the chilling operation can be entirely eliminated by this procedure and salt addition.

PRESENT day bottles produced on automatic machinery are quite clean, and are generally carefully packed particularly where re-shippers are used. Many bottlers of shampoo do not cleanse the containers while some use vacuum or air pressure to draw or blow out any lint and dust from the liners and corrugated board.

For the better trade, bottles should be washed. Rotary washers which merely rinse the containers inside and out with hot or cold water under water-main pressure are adequate. Ample time for thorough draining before filling should be allowed.

Syphon filling machines are the most commonly used for filling shampoo. They are simple and easy to operate, comparatively low in initial cost, easy to clean and adaptable to sizes from one ounce to one gallon such as packed for the barber and beauty shop trade. The capacity of this hand-fed type will run from 10 to 30 per minute dependent upon the size of containers.

The smaller sizes can be fed to the syphon tubes two at a time i.e. one in each hand, by properly spacing the stems, with proportional increase in production. If the vacuum type filler is employed, the reservoir should be brought up to a level just below that of the containers to be filled. In this way, the liquid being free-flowing, operation at low vacuum to minimize foam can be accomplished and still maintain high production.

Filling stems are usually open-end and the liquid rushes in to create much foam, especially in tall bottles. They are now available with closed-end and a number of small holes equally spaced around the periphery of the filling stem. These are worthy of trial to speed the filling operation since liquor bottlers have found them so.

In closing, being able to produce a brilliantly clear liquid shampoo, one may well capitalize it. By way of suggestion, a small spot label can be used, with directions printed on the back to be read through the contents. Also, since the label will be wetted repeatedly with soap and water, it should be of the best paper stock printed with alkali fast inks and lacquered, then securely and neatly applied.

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The usual losses of fish oil in the process of alkali refining and washing were eliminated by treating the oil at 40-5°C. with 5 per cent excess of 27° Be. caustic soda solution and 2.5 per cent of commercial salt inside of 20-5 minutes, and separating from the soapstock after 12 hours. The resulting oil, free from soapstock, is nearly colorless and dry, with an acidity of 0.05-0.1 per cent. When the oil was hydrogenated with 0.4 per cent of nickel, a fat mixture melting at 48°C. was obtained. A. Ryabov. *Masloboino Zhirovoe Delo* **12**, 549; through Chem. Abs.

. . . One and a quarter billion pounds of bar laundry soap are still consumed annually in the United States,—about forty per cent of the total soap consumption,—in spite of the inroads made in recent years by chips, flakes, granules and powders at the expense of the laundry bar.

LAUNDRY SOAPS

By Joseph M. Vallance
Warrington, England

LAUNDRY, washing and household soaps have become almost synonymous terms during recent years, but let us consider laundry soaps here mainly from the point of view of their desirability, or lack of it, in actual laundering practice on a commercial scale. In point of fact, laundry tests and requirements have very considerably influenced household soap standards, just as certain changed methods of textile treatment have brought about developments in shampoos. Even the conventional bar soap, whose market position was once considered unassailable, has during the past decade been forced to give ground to flakes, chips and powders under pressure of new requirements set up by improved laundry practice in the home.

The latest U. K. Census of Production figures show a slight increase in total output of all classes of soap of 2500 tons per year, while there is a significant drop of 2150 tons in bar soaps for household use and a further drop of 1000 tons in laundry bar soap. The year's increase is accounted for by a moderate rise in soft soap production, coupled with a sharp rise in soap granules, globules, mixed powders, chips and flakes.

Before proceeding to a closer examination of the various types of laundry soap, it may well be of interest to note the following British Government Department Specifications:

Yellow Laundry Soaps (including Hard, Primrose and Pale.)

1. The soap shall be of firm consistency; free from brittleness; of a color not darker than pale yellow; free from objectionable and/or fishy odors, and shall not develop such odors during storage within twelve months of delivery.

2. The soap shall yield not less than 63 per cent of fatty and resin acids, having a titre value of not less than 37°C. The resin acids shall not exceed 22 per cent of the total fatty and resin acids. The total impurities shall not exceed 1 per cent. The total free alkali (calculated as Na_2O) shall not exceed 0.5 per cent, of which the free caustic (calculated as Na_2O) shall not exceed 0.15 per cent on the soap.

3. The soap shall be in bars, weighing nominally 1 lb. or 3 lbs. each as may be ordered; and each bar shall be legibly stamped with such marks as the contract may direct.

4. Unless otherwise ordered, the soap shall be delivered packed in trade packing cases.

White Laundry Soaps (resin-free.)

1. The soap shall be of a creamy white color; free from resin and cottonseed oil, and from objectionable and/or fishy odors; and shall not develop such odors during storage within twelve months of delivery.

2. The bar soap shall be of firm consistency and free from brittleness. It shall yield not less than 63 per cent of fatty acids. The total impurities shall not exceed 0.75 per cent. The total free alkali (calculated as Na_2O) shall not exceed 0.3 per cent, of which the free caustic (calculated as Na_2O) shall not exceed 0.1 per cent on the soap.

3. The soap in flakes, thread or other approved finely-divided form shall yield not less than 81 per cent of fatty acids. The total impurities shall not exceed 1 per cent. The total free alkali (calculated as Na_2O) shall not exceed 0.4 per cent, of which the free caustic (calculated as Na_2O) shall not exceed 0.1 per cent on the soap. Flake soap shall consist of flakes, the thickness of which shall not exceed 0.02 inch.

4. The soaps shall be suitable in all respects for washing woolens, and shall not cause any stickiness in articles washed and finished with them.

5. The bar soap shall be in bars, weighing nominally 1 lb. or 3 lbs. each as may be ordered; and each bar shall be legibly stamped with such markings as the contract may direct.

6. Unless otherwise ordered, the bar soap shall be delivered packed in trade packing cases, and the soap other than bar in trade pattern wooden drums.

In many cases the soaps sold to laundries are identical with those marketed to the general public for household use, while in other cases modifications of one kind or another are required to meet the special conditions imposed by various laundering processes. Thus, while some laundries purchase soap powder merely on a cost basis, and thus usually obtain a heavily filled product,—others insist on a pure soap with a high fatty acid content, preferring to buy and mix their alkalies separately. The same applies equally to other forms of soap.

Competition is nowadays so keen that soapmakers are forced to comply with the principles upon which the modern laundry works in order to be able to satisfy the demand, instead of just submitting a soap that is unsuitable and hoping for the best. This is shown very clearly by the fact that, in 1936, The British Launderers' Research Association decided to accept soapmakers as members. Among the research problems continually investigated by the B.L.R.A. is, for example, the interrelationship of laundry processes and the types and constitution of the soaps used in such processes; also, of course, the general study of detergency, surface tension, the effect of temperature and pH fluctuations etc., and the comparison of soaps with other detergents, such as fatty alcohol sulfates. The fact need scarcely be stressed that this kind of research is not only of first importance to the laundry trade itself, but ultimately is bound to have a very considerable effect on the manufacture of washing soaps and all other classes of detergents.

E. Albinson, himself a laundry chemist, has enumerated as follows the factors upon which a successful washing process is based:

(1) Weight of load in the machine.

(2) Amount of water used in the machine.

(3) Detergents used (including soap).

(4) Temperature control.

The third factor must of necessity be considered in conjunction with the remaining factors and, on examination, the chief point that emerges is that the soap used must give a solution that will suspend the dirt efficiently as well as remove it from the fabric. In other words, the soap must have good wetting properties, must emulsify the dirt rapidly, and must retain the dirt in suspension through a fairly wide range of temperatures, without showing a tendency to re-deposit dirt on the fabric.

Ready solubility, well-defined detergent properties and ease of rinsing, are all demanded of a first-class laundry soap. Thus the fat charge must be carefully considered, as well as the physical form of the soap itself. In the old days, the washing solution in a laundry was made up from stock solutions of bar, or chip soap, and alkali, but the practice is growing more widespread of adding soap powder direct to the washing machine. Obviously a powder that is not readily soluble is likely to cause trouble and waste during the subsequent washing processes.

While it is almost impossible, in view of the varying conditions in different laundries, to lay down any hard and fast rules as to the most desirable type of soap to employ, Albinson appears to think that the most economical soap for this purpose is a white curd soap having a titre of 35° C. to 40° C., although in some districts an oil soap of medium titre is found preferable. My own view is that a "minimum titre" fat charge should at least be experimented with, not only for chip soap but all other forms of laundry soap as well. The information so gained is invaluable in evolving a soap of the right consistency and solubility. It has been amply demonstrated that the addition of 30 per cent peanut fatty acids to the fat mixture (say tallow, bone fat and coconut oil) brings about a considerable drop in the titre and thus vastly improves the ready solubility of the soap. The brittleness of such a soap in chip form may be offset by the judicious incorporation of castor oil or other plasticisers, while it is also advisable to add 0.1 or 0.2 per cent of a suitable antioxidant.

YELLOW bar soap still retains a good deal of its household popularity, however, although some soapmaking firms are in these days of reckless competition attempting to achieve the impossible by incorporating in the soft resinous body an absurd amount of silicate and soda ash, with the result that a frosted bloom is common on the surface of the bar. In any case, it is always better policy to use pearl ash with silicate rather than soda ash, especially where a heavy proportion of filler is incorporated. American type floating soaps, naphtha soaps, and mottled laundry soaps are finding but an extremely limited interest in the U.K. market today.

Yellow soaps are still made from tallow and rosin, although bone grease, cottonseed oil hardened whale and palm oils, are of course employed in mixed charges, together with from 15 to 35 per cent and even upwards of silicate, soda ash and other fillers. Similar washer soaps also include coconut and palm kernel oils. Tallow and palm oil soaps lather profusely in hot water but are only with difficulty soluble in cold water. On the other hand, coconut and kernel oils are readily soluble and give a good lather in cold water, and for this reason are very useful constituents of the fat charge. The rosin soap, when used in the proportion of 15 to 30 per cent, tends to increase all-round solubility, improves the lathering power and cheapen the final product. It is not suitable for use in flakes or powders, however (at least, in any quantity) as it naturally impedes the grinding and flaking processes.

Yellow household soap is usually a full-boiled fitted soap, but

some of the smaller makers use the semi-boiled method. The only main variation in the full boiling process is that sometimes the rosin is added directly to the kettle after the glyceride stock has been saponified, while in other cases it is considered preferable to saponify the rosin separately in a smaller kettle and then pump the rosin soap into the main batch. Neutralization is carried out by means of sodium carbonate, the sodium resinate being then washed with brine, allowed to settle, and pumped over as indicated. When using the semi-boiled process it is customary to melt the rosin with the fats, run in the caustic lye, and continue crutching until the mass is smooth.

A typical full-boiled process entails the melting of the tallow, grease, etc. stock in the kettle, followed by the addition of lye and boiling with open steam. Small quantities of stronger lye are added from time to time, as long as they are absorbed into the boil, a fact that is ascertained by testing samples between the finger and thumb for firmness and dryness. On continuing to boil gently, the paste becomes smooth and creamy, and the pasty mass is ultimately ready for graining out. This separation is carried out either with salt or brine, in the usual manner, the amount of salt required varying with the fats used. Thus this type of tallow soap is fairly easily grained, but for laundry soaps incorporating considerable proportions of coconut or palm kernel oil, it is usually better practice to grain out with caustic lye, owing to the solubility of such soaps in weak salt solution.

The settled lye is eventually removed and the grained mass "closed" by boiling on open steam to make it smooth. Boiling on strength is next begun until the soap is "open" once more. Boiling is still prolonged, in order to saponify thoroughly, after which the mass is allowed to stand and the lye again drawn off. Fitting is finally carried out by boiling with open steam until the soap is properly closed. When a sample tested with the hot trowel drops off in clean flakes, then the steam is turned off, and the pan covered and allowed to rest for seven or eight hours. The soap is then ready to receive its mixture of rosin soap, which has already been prepared by neutralization with sodium carbonate. It is important to watch the heating of the rosin mass carefully, in order to prevent it from adhering to the sides of the kettle or expanding and boiling over. During the neutralization process, the rosin should be stirred continually, in order to facilitate the reaction. After addition to the soap in the main kettle, sufficient caustic lye is pumped in, in order to complete the saponification of unneutralized rosin. A final "fit" finishes the soap, which is then crutched, run into frames, and allowed to cool. Slabbing and cutting are carried out in the usual manner, while fillers may be added in the crutcher.

ONE of the most interesting contributions to modern soapmaking is the work of Dr. R. L. Datta, who has shown that washing soap made by the grained process is far ahead of any fitted soap in the matter of detergency, provided its raw materials are correctly blended in accordance with the hardness number. Dr. Datta gave further proof of this contention by carrying out detergency tests on several well-known American and British brands of laundry soap (all fitted soaps), in comparison with a well-made grained soap. The latter showed up most favorably every time.

Such a grained washing soap must obviously be based on oils and fats free from dirt and other impurities, for since no niger is separated from a soap of this order, any defects must pass on to the finished soap. Probably the best method is to melt the stocks over brine and decant the clear melted mixture as required—the impurities collecting at the juncture of oil and brine.

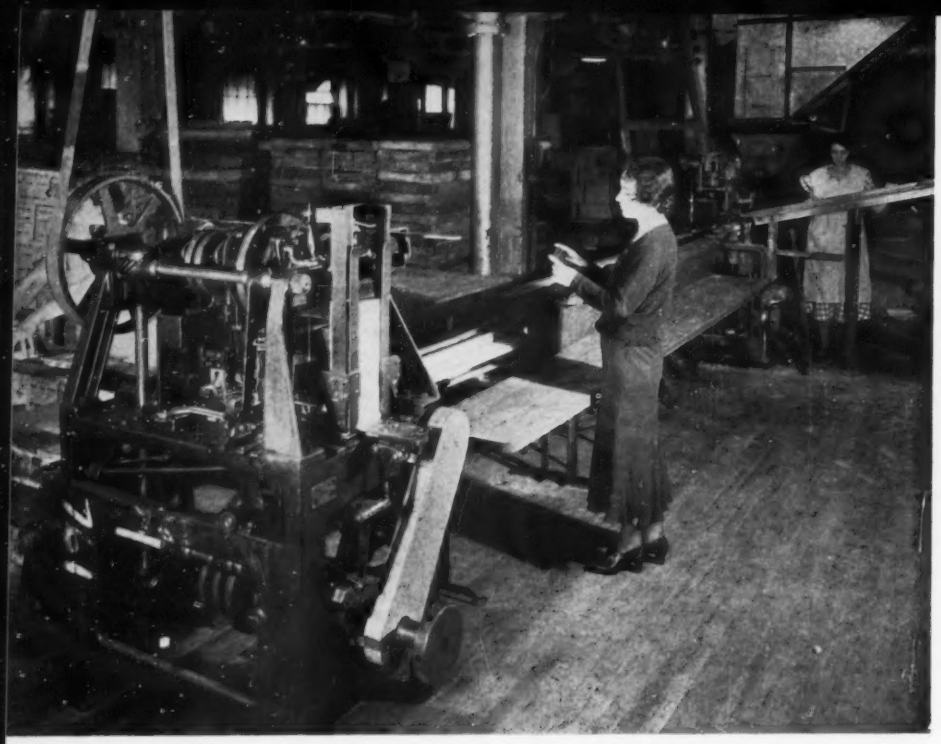
The method of saponification is to charge the kettle with about one-fifth its capacity of water, to which is added caustic soda, 22 per cent by weight of the total stock. Heat is then applied until the solution boils, at which time the oil charge is added carefully, but quickly. Saponification commences immediately, and by the time the entire charge is in the kettle, the batch will have passed the emulsion stage and will consist of "open" soap floating over the boiling lye. Boiling is continued for from four to five hours, with the occasional addition of water as required. At the end of this period, saponification will be complete.

The soap is next closed to a thin glossy mass, by the addition of water, and is then salted out and allowed to settle overnight. In the morning the lye is withdrawn and the soap, still hot, is ready for graining. The latter operation is carried out by dissolving the soap to a moderately thin, glossy paste and cutting it again with strong brine solution. The proper "cut" is indicated by the use of the trowel test, as previously mentioned.

When this point is reached, the mass is boiled slowly with indirect steam only. The soap in the kettle gradually separates from the lye and in a few hours forms neat grains on the surface. When the graining is complete and the kettle free from froth, the heating is stopped and the soap allowed to settle for a day or two. The lye is then drawn off and the soap crutched for 10-15 minutes, until a smooth, glossy, opaque paste is obtained. A suitable perfume may be added in the crutcher. Framing should preferably be carried out in small wooden frames, in order to facilitate gradual cooling. The bars may be wire-cut or heavily hand-stamped, but only very small cakes are really suitable for ordinary stamping, owing to the tendency for such short-grained soap to crack.

It may be noted that Datta

(*Turn to Page* 73)



The first automatic toilet soap press, bought by the Remmers Soap Company in 1912. The first Jones cartoning machine was sold to the Beaver Soap Company in 1918. By coincidence, these machines are together, due to the fact that Remmer's was purchased by the Beaver company who moved the press to Dayton and hooked them up to press and carton Grandpa's Wonder Soap.

THE MODERN

Its development and some interesting incidents connected with its adoption by soap makers all over the world as told by

R. A. Jones

President, R. A. Jones & Co.

AN early invention of mine accounts for my connection with the soap industry. I devised a way to apply printed words and pictures in colors to one side of a cake of toilet soap and cover them with paraffin so that they would remain till the soap was used up. This made a popular advertising novelty, and I came from southern Kentucky to Cincinnati and went into the business of treating soap this way and selling it.

The process called for the construction of a number of special machines. Without previous experience in building machines, I ventured to set up a small shop in which, with the help of two mechanics, I made what was required. The soap, pressed into the proper shape, was supplied by local factories. I was soon buying millions of one and two ounce cakes and having trouble with deliveries. The pressing was tedious work.

Placing a blank between the dies by hand, the operator brought them together violently and then parted them by kicking a pedal near the floor. The hand was again placed between the veritable lion's jaws of the press to remove the finished cake. Error in timing hand and foot meant a wound. The operation could be performed ten times a minute by a skilled worker. Allowing for lost time, this figured out 5,000 cakes in the then prevailing ten-hour day. Though I became impatient, I couldn't ask the operators to speed up. If they did, they cut off fingers between the dies. They frequently cut them off anyway. I thought a machine could be made to do the work more rapidly and with less hazard, but most everyone discouraged me. "You can't do it that way, its been tried too often. The only thing for toilet soap is a foot press," I was told.

Remmers Soap Company supplied a part of our soap. Its president, Richard Neff, had seen the labor saving machines I had designed and made for my factory. On the strength of this, apparently, he accepted an offer I made to furnish him a press on trial. I had in mind a picture of the press. It was shy

R. A. JONES

EXACTLY twenty-five years ago, the first automatic soap press was installed in the Remmer's soap factory by R. A. Jones, the inventor. For the past five years, we have urged Dr. Jones to write the story of the development of the automatic press for "Soap,"—and at last our efforts are rewarded. The story, exactly as set down by him, is published here,—a genuinely human story which should be enjoyed particularly by oldtimers in the soap industry.

Ruel Anderson Jones,—that is Dr. Jones' full name,--was born in Southern Kentucky, a descendant of Revolutionary stock, all of whom were farmers. His first experiences with inventions came at the age of seven years, carrying tools for his father who invented a number of labor-saving devices. Today, Dr. Jones is a widely known character in the soap industry,—not only in the United States, but all over the world.—The Editors.

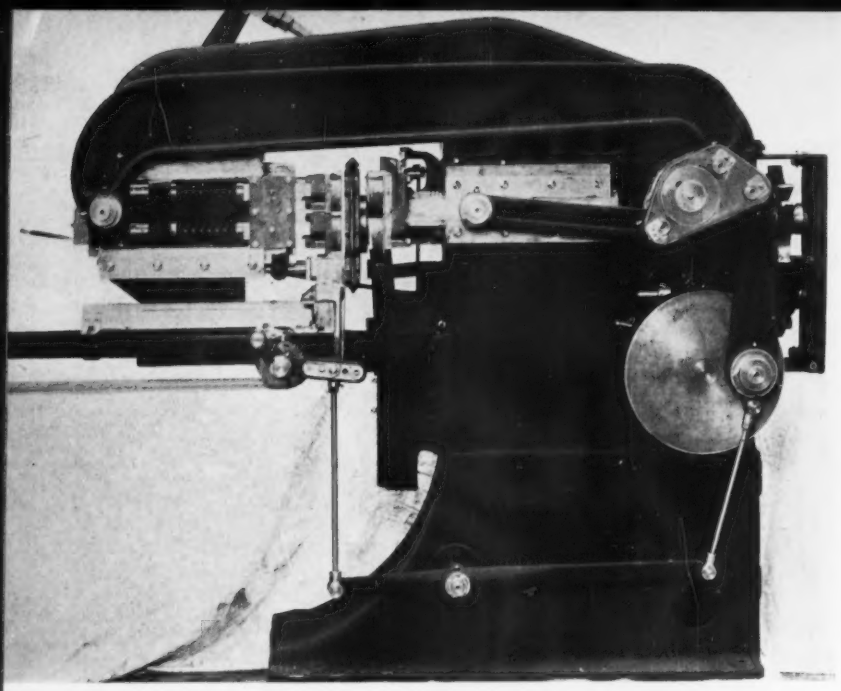
SOAP PRESS

of some details but details could be handled as we came to them.

We had barely started to make a preliminary and mostly wooden model of the press when a man, about 25 years old, applied for a job as machinist in our shop. This was in 1912. Since he claimed to know his business and I liked his appearance, I put him to work. His name was Harry Struewing and he came from a family of machine builders. I soon found that he did know his business and made him superintendent. He is still on the job. We have never had a short word either way. He has a marvelous memory and could, I believe, reproduce without blue prints any mechanical device we have made. He has superintended the work on every machine we have produced since he came with us. When I describe a new machine that I have in mind, he tells me what he thinks of it. We frequently disagree. Neither gives in until he is convinced. But we usually go ahead with the scheme and the one proved to be mistaken cheerfully owns up.

Our model was full size. We bored holes in its frame for bearings, bought gears which were later used on the actual press, fitted them to steel shafts and located them on the model. It was not a working model only because machines made mostly of wood will not press soap. It was made by the cut and try method. Anything we did not like was easily changed, thanks to the wood.

Models of wood are employed in developing all of our machines. They are not expensive, they aid concentration and forestall costly mistakes in steel and iron. Most important probably of all is the rapidity with which they can be produced. They are good for inventors because inventors should strike while the iron of inspiration is hot. The wind blowing "where it listeth" has nothing on hunches. They cannot be ordered. They should have a cordial reception when they come



Modern heavy duty laundry and toilet soap press . . . presses 90 to 140 cakes per minute of laundry soap and up to 250 per minute of toilet soap . . . handles cakes from one to sixteen ounces . . . a far cry from the soap press of 1912.

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and be materialized and recorded in wood, wax or any appropriate substance at hand, with the least possible delay.

When the model for the Remmers press was complete and to my liking, Harry and his assistants copied it in steel and iron. After a few days operation, it was pronounced acceptable at the agreed price of twelve hundred dollars.

When one starts on a thing of this kind, there is not much stopping until it is right and there appeared to be many ways to improve the press. In a few months, we replaced the Remmers press, which had begun to give trouble, with one that worked better, looked better and proved so durable that it is still in service.

In this transaction we did something new in the special machine business. The deal with Remmers was closed. They had accepted and paid for the press. Its future performance had not been guaranteed by us or even predicted, yet without their asking, we traded the second one for the first. On all presses and cartoning machines sold since, we have adhered to this policy. If a machine, whether it has been paid for or not, doesn't do what we promise, we make it do so without question and usually at our own instance. This has cost us very little and made selling much easier.

We were once, however, obliged to set a limit to this policy by a newcomer in the soap business whose scheme, had it worked, would have given him an edge on his competitors. He had purchased for a twentieth of its original cost, a second-hand press of the earliest vintage, which he soon found to be worthless. Having heard of our practice in other, but not similar cases, he naively passed the buck to us, and concluded his argument with, "You can't afford to have it known that your machines won't do their work, so I shall expect you to get busy." No, he did not propose to stand the cost. Our refusal to stand it lost us no future orders from this industrial genius. He was soon out of business.

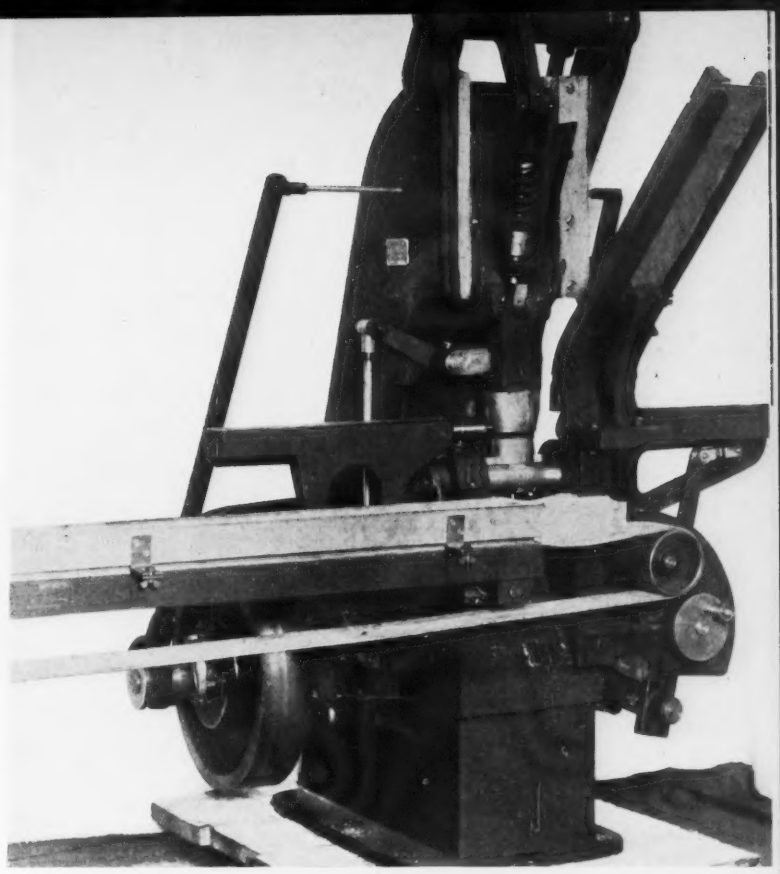
When Remmers' second press had operated a few weeks I called on Andrew Jergens & Company, whom I had seen trying out an automatic press unsuccessfully a short time before. They were skeptical but when I showed them soap pressed on Remmers' press and told them how it worked, they gave me an order. The price had risen to fifteen hundred dollars because Remmers' second press cost us over twelve hundred.

Then I went to see Dave Kiley, general manager of Armour's Soap Works, Chicago. He said he had wasted too much time and money fooling with automatic presses, and was convinced that the only way to press toilet soap was on a foot press. His soap was the best that could be made and he'd be "hanged" if he would spoil it in pressing. When I told him I would place a press in his plant ready for work, on sixty days trial, subject to return, freight collect, if he didn't want to keep it, he replied. "You are assuming a big risk. I have no idea we will keep it, but if you have money to waste, go on and send the press. I'll give it a fair trial."

It was only a short way to Swift's factory where I saw its manager, Mr. Quailley. With him, I had, in effect, the same conversation with a like result. Both machines were to press Pullman, hotel and other small cakes. They were accepted soon after delivery. In two years both Armour and Swift were pressing practically all of their toilet soaps, large and small, on automatic presses.

I had most of the work done outside of my shop and only put the presses together, painted and tuned them up in it. For several years, we were chiefly concerned with production. In addition to soap factories at home, we supplied some abroad. We were constantly improving the presses.

SOAP men will remember that most all toilet soap came out then with a narrow, shallow groove on each of its longer sides. Manufacturers did not wholly approve of this, but the prevention of accidents and saving of money in production outweighed its disadvantages. The groove was made by



The modern pin-die soap press . . . presses 60 to 100 cakes per minute . . . especially for fine toilet soap pressing to bring out design and lettering and produce a high gloss on the cake.

◆

blades that went through slots in the sides of the die box and held the cake till the dies retreated, otherwise it would follow one or the other of them out. The mechanism for operating the blades was complex, took time to adjust in changing dies and crowded other mechanism in their region. The grooves filled up with dirty water and gave the cakes after the first use an unsightly appearance.

There must be some way to get away from them. Why wouldn't the cakes stay in the box without the blades? One reason, simple as it was, took weeks to find. The blanks were too short and would not expand enough lengthwise to make the pressed cakes adhere to the ends of the box when the pressure was removed. The width of a blank, so long as it fills out in pressing, is not important. It was better to lengthen the blank, for this would also improve the appearance of the cakes by lessening the water marks which always appear when a blank is elongated in pressing. This helped, but did not fully remedy the trouble. We turned out attention to the press, found a simple but far from obvious way to improve it and thereby completely solved the problem of pressing cakes without grooves.

There was another problem loudly calling for solution. Both toilet and laundry soap blanks required drenching in brine or a glycerine solution before going between the dies to prevent scraps of soap sticking to the dies and marring the cakes. Many varieties of toilet soap were discolored by this treatment. A similar effect on laundry soap was not so important, but the still wet cakes of both interfered with automatic wrapping. No better lubricant could be found nor did any interfere less with wrapping.

Relief, if any, must come through the press, and we proceeded to do what should always be done first when serious trouble arises on a labor-saving machine. We made a study of every operation from the time the product touched the machine until it was on the offtake conveyor and found that some scrap was formed by the mechanism that fed the soap into the dies. Some was formed in pressing where poorly fitting dies squeezed out soap along the sides of the upper one from where it fell on the lower and stuck. More scrap, however, than in all other ways, was formed by blanks that were shorter or narrower than the die box.

When the dies under pressure first began to act on such blanks, soap was forced into the engraved letters and designs which scraped it off as the body of the blanks flowed under increased pressure and held it to mar following cakes. Another reason for having the blanks go into the dies snugly had been found. We made the indicated alterations in the press, prescribed snug fitting blanks and were able to turn our attention to other things.

This is not to say that a little lubricant, about one-tenth as much as formerly, is not still required on some brands, but this is not enough to discolor the soap or interfere with wrapping. These are two examples of the many difficulties that from time to time confronted us in the development of our prtsses to their present degree of efficiency.

By this time we had built and fully equipped a factory in Covington on an acre lot in walking distance of my home. It provided facilities for greater production, and enabled us to discontinue sending work out to other shops. I sold the advertising soap business and machinery. I have tried often, but always in vain, to invent another good advertising novelty.

WE had not made presses for laundry soap and began to look into the advisability of doing so. For a time the requisite brain wave was lacking, but one day as I was leaving Omaha for home it

came to me. Inventors think of many schemes. Most are worthless and are soon recognized as such, but the inspiration that brings a real, worthwhile invention supplies along with it the assurance and enthusiasm required to carry it to fruition. We made a press on the conceived plan for Armour & Company, which went into production without a hitch. We didn't have to replace it with a better one. It was in full production for 10 years. The demand for laundry soap presses soon increased our business so that we were obliged to treble the size of our shop.

It is a singular fact that we were making presses for three years before we told Procter & Gamble about them. The explanation is that we thought the production limit of our presses, 100 per minute, was too low for their requirements. With such a potential customer, unsolicited, at our door, we obtained an order for a press from Bennie & Kitchen, Melbourne, Australia, half way around the world.

The bar they wished to press was fourteen inches long, and required a press more than twice the size of those we were making for American bars which were never more than six. The press on completion produced one hundred fourteen inch bars per minute and thereby demonstrated its ability to take care of 200 bars less than half their length in the same time. Mechanism to feed two cakes in place of one and a partition in each die box about sums up the alterations required.

We now had something to show Procter & Gamble, and I called Mr. Ed Anderson, their general manager, and told him so. He set a time to come and look at it. When he arrived he asked, "Where is that press you are bragging about?" We had soap on hand and showed him what the press would do. "What's the price of one arranged to press two cakes at a time?" he asked. Our figures were satisfactory and he told us to enter his order.

The press on completion justified its promise. It was the first duplex press; it enabled us to meet demands for rapid production and gave us a favorable start at Ivorydale. We sold Mr. Anderson twelve like it one day a few months later and in 1920, thirty-six in one lot. These are but a few of the machines we have supplied Procter & Gamble. We had no trouble about speed or quality of the work with any of these machines. They pressed 200 cakes per minute, all that was required or hoped for then. We now produce one press which does 350 cakes per minute without loss of efficiency or quality of work. Lever Brothers tried our presses in a few of their numerous factories distributed around the world, and then began in earnest to equip all of them with both our laundry and toilet presses.

Armour, Colgate - Palmolive - Peet, Swift, Jergens, Kirk, Stanley, Kirkman, Globe, Wrisley, Waltke, Los Angeles Soap Company and dozens of others in America and Canada put them in as fast as we could deliver them. Goodwin's, Wholesale Cooperative, Harris, Pears, Crosfields, Bibby, Price, Fields, and others in England, and Gal in Madrid, and Cadium in Paris, were among our early clients abroad.

WE avoided "pin die" cakes till we could handle all others. In pressing a true pin die cake the upper and lower dies meet and form a line instead of a band around its rim. Our press would handle cakes of pin die shape by leaving a narrow band instead of a line. A number of soap makers accepted this alteration but many would not. The Manhattan Soap Co. was among the latter, although they greatly needed a number of presses for "Sweetheart." To make a pin die press, we had to start all over again. No mechanism we had developed for laundry or toilet presses could be utilized. However, we undertook the job and a few months later the Manhattan Soap Company put into production the first "Jones Pin Die Press." They liked it well enough to equip their entire plant with others like it.

While engaged in supplying these machines, I had frequent interviews with Mr. O. M. Burke, owner of the company, who always maintained that he could get a "rise" out of me on shorter notice than anyone else. Neither of us would have gone far in the diplomatic service. Soon after his first press was installed, it got out of adjustment and started trouble. Mr. Burke wired for me to come to New York about it. When I entered his office he said, "Jones, you have come at the right time. That press has got me so mad I could whip my weight in wildcats." Considering his alleged form, I though it safer to confine my energies to putting the press into working order. Mr. Burke's indignation was justified. He was always fair.

While the different types of presses were in their earlier stages of development trouble calls were frequent and urgent. Once when I was in California about trouble on one of our presses due to a certain part getting out of adjustment, I received a wire soliciting my presence in Boston for the same purpose. Witnesses will not be needed to verify that the offending part was securely keyed and taper-pinned on all later machines before they were shipped.

It took us only a few months to wake up to the fact that it pleases the buyer and pays the seller to make sure that a machine will do its work in actual production, before it leaves the shop. Re-orders, for one thing, cost less. When a machine goes into first class production without delay, little if any railroad fare will have to be charged up to a re-order. As time goes by and machines continue to do their work with a minimum of upkeep, selling becomes more and more a matter of routine, granted that prices are fair and deliveries within reason.

I came on the scene when many of our pioneer soap makers were still active. I think Mr. John T. Stanley, who passed away recently in something near his ninetieth year, was the last of those in-

(*Turn to Page* 53)

New Specifications for

POTASH LINSEED SOAP

A NEW specification for soft potash linseed oil soap has been approved by the Director of Procurement "for the use of all departments and establishments of the Government, and shall become effective not later than January 15, 1938." This specification may, however, be put into effect by any department at an earlier date if so desired. The specification was drawn up by the Technical Committee on Detergents of the National Bureau of Standards of which F. W. Smither is chairman. It calls for 43 per cent anhydrous potash soap, glycerine 4 per cent, moisture 55 per cent, and sodium compounds not to exceed a half of one per cent. It is known as Specification P-S-613.

The specification follows:

A. Applicable Federal Specifications

A-1. The following Federal Specification of the issue in effect on date of invitation for bids shall, insofar as applicable, form a part of this specification:

P-S-536.—Soap and Soap Products; General Specifications (Methods for Sampling and Testing).

B. Type

B-1. Potash-linseed-oil soap shall be of but one type.

C. Material

C-1. Soft soap shall be a uniform translucent firm gel or paste made solely from whole neutral raw linseed oil and potash, and shall conform to the requirements set forth in sections D and E.

D. General Requirements

D-1. *Soap, soft, potash-linseed-oil.*—

D-1a. *Consistency, color, and odor.*—The material shall be a uniform translucent firm gel or paste of a yellowish white to greenish-brown color. Unless otherwise specified, each bidder shall submit with his proposal a 1-quart sample of the soap that he proposes to furnish, packed in a screw-top glass jar, to show odor, color, and consistency. The sample so furnished shall be kept for comparison with samples from deliveries. (See par. F-1a, I-3, and I-5.

D-1b. *Moisture (by Xylol distillation method).*—Moisture shall not exceed 55 per cent. Deliveries which yield more than 55 per cent of moisture shall be rejected without further test.

D-1c. The soap shall dissolve readily to give a 0.15 to 0.2 per cent solution, using distilled water at 10° to 15.5°C. (50° to 60°F.). The solution so prepared shall yield a good suds.

	Minimum Per Cent	*Maximum Per Cent*
Moisture (xylol distillation method)	.....	55
Sum of free alkali and total matter insoluble in alcohol	.....	1
Free alkali, calculated as potassium hydroxide (KOH)	.....	0.1
Free acid	.....	None.
Chloride, calculated as potassium chloride (KCl)	.....	0.5
Matter insoluble in distilled water	.....	0.2
Unsaponified matter	.....	2
Anhydrous soap, calculated as potash soap	43	.....
Total sodium compounds, calculated as Na_2O	.....	0.5
Glycerol	4	.....
Iodine number (Wijs) of mixed fatty acids prepared from the soap	175	.....
Rosin	.....	None.
Sugar	.....	None.

E. Detail Requirements

E-1a. The material shall conform to the detail requirements as shown in the accompanying table.

E-1b. *Computation.*—The percentage of moisture shall be computed, and reported by the testing laboratory, on the soap as received. The percentages of all other constituents shall be calculated and reported on an assumed moisture content of 50 per cent. For basis of purchase, see paragraph I-1.

F. Methods of Sampling, Inspection, and Tests

F-1. Any requirements of the individual departments are noted under Section H.

F-1a. The inspector or purchasing officer shall determine whether or not the material is satisfactory as regards odor, color, and consistency. If unsatisfactory the material should be rejected and not submitted to the testing laboratory for the tests referred to under paragraph F-2. (See pars. D-1a and I-3.).

F-2. Deliveries will, in general, be sampled and tested according to the methods contained in Section F of Federal Specification P-S-536. However, the Government reserves the right to use any additional available information to ascertain whether the material ordered meets the specification.

G. Packaging, Packing, and Marking

G-1. Any special requirements of the individual departments are noted under section H.

G-2. *Packaging.*—Unless otherwise specified, commercial packages are acceptable under this specification.

G-3. *Packing.*—Unless otherwise specified, the subject commodity shall be delivered in standard commercial containers so constructed as to insure acceptance by common or other carriers, for safe transportation, at the lowest rate, to the point of delivery.

G-4. *Marking.*—Unless otherwise specified, shipping containers shall be marked with the name of the material, and the quantity contained therein, as defined by the contract or order under which the shipment is made, the name of the contractor, and the number of the contract or order.

H. Requirements Applicable to Individual Departments

H-1. The following departmental specifications of the issue in effect on date of invitation for bids shall form a part of this specification:

H-1a. *Army.*—U. S. Army Specification No. 100-2B, Standard Specification for Marking Shipments.

U. S. Army Specification No. 22-42, Supplies, Subsistence, for U. S. Army, Conditions Governing the Purchase of.

H-1b. *Navy.*—Navy Department General Specifications for Inspection of Material (copies of which may be obtained without cost upon application to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.).

H-1c. *Marine Corps.*—Instructions issued by the Quartermaster.

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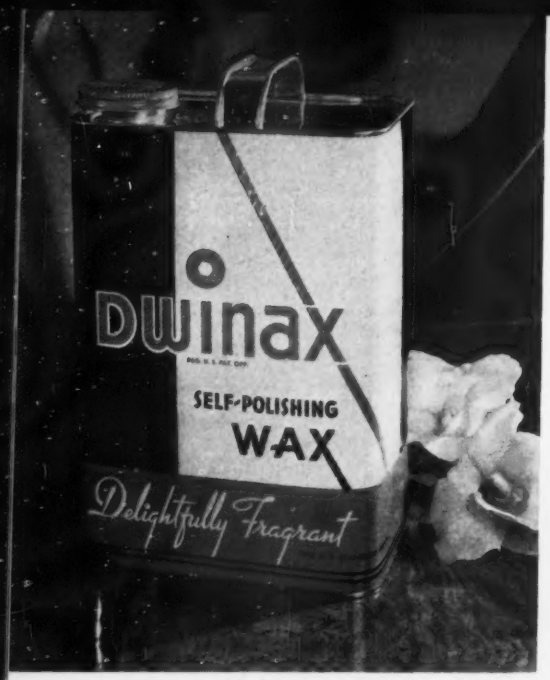
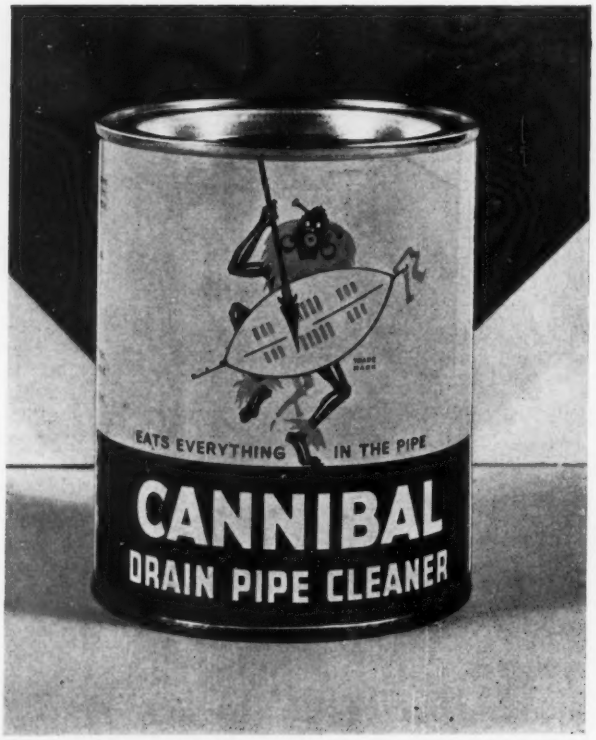
New Products



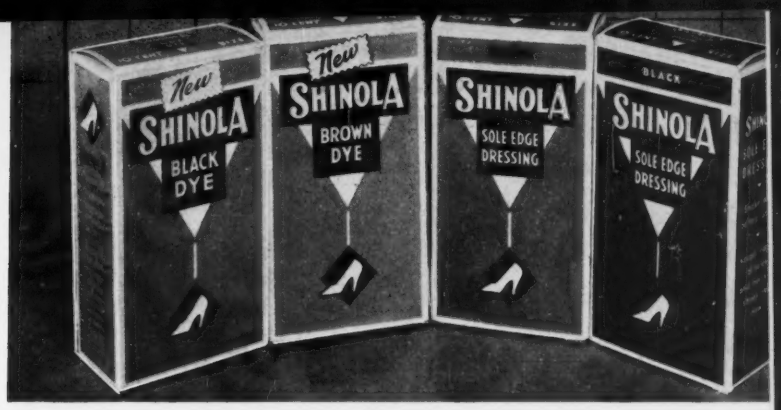
The companion product to Dwin Insecticide Spray,—the new self-polishing floor wax, Dwinax, recently put on the market by the Baldwin Laboratories, Inc. of Saegertown, Penna. The product is perfumed with the same odor used in Dwin insecticide. Can by Continental Can Co.



Cannibal Drain Pipe Cleaner is a new item in the line of the John Sunshine Chemical Company of Chicago. Strong yellow, black, and red package design. Can by Continental Can.

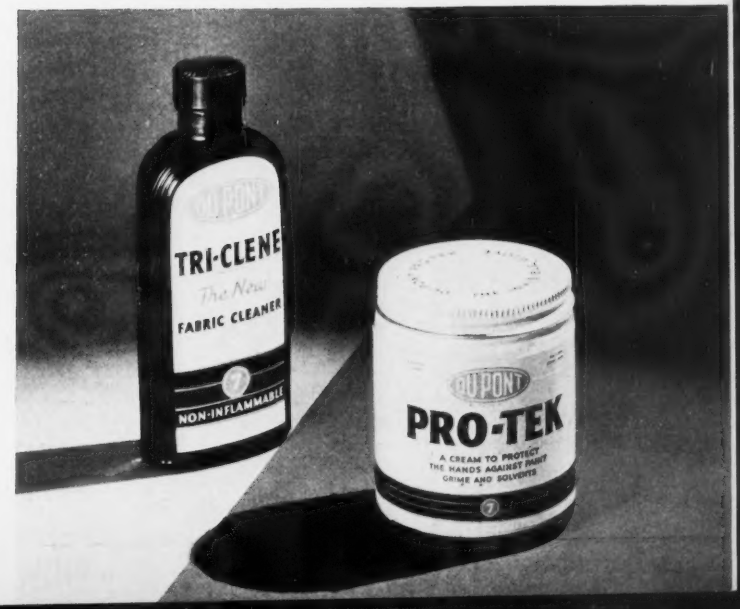
Billion Bubble Shampoo Base,—a new idea in a shampoo base for beauty parlors by the Clifton Chemical Company of New York. The necessary quantity of semi-solid shampoo is cut off the roll with a knife and dissolved. Patent pending, says the manufacturer.

and Packages



Four new Shinola Products,—in matched carton design and size. Black Dye, Brown Dye, and Black and Brown Sole Edge Dressings,—manufactured by the Hecker Products Corp. of New York. Cartons designed by H. Hymer.

The packages for Mahdeen hair tonic and dandruff remover are dressed up with new closures. On the professional size for barber shops, a new dispensing closure of plastic material is added. On the retail packages, new plastic closures. Product by Mahdeen Company of Nacogdoches, Texas. Closures by Anchor Cap.



Du Pont dresses up its fabric cleaner and hand-protecting cream in new packages, both products designed for sale in the automotive market. Pro-Tek in a glass jar with metal screw cap,—Tri-Clene in amber glass bottle with brown molded cap. Packages designed and manufactured by Owens-Illinois.

NEWS . . . . . .

Acme Soap Closes Office

Acme Soap Manufacturing Co., Albany, N. Y., has just discontinued its New York City office. Mail should be addressed to the plant at 99 Church St., Albany, where executive offices will now be located.

Lightfoot Schultz Unionized

A labor contract with the Chemical and Cosmetic Industrial Union, C.I.O. affiliate, has recently been signed by Lightfoot-Schultz Co., Hoboken, N. J. In the absence of Marshall Mundheim, executive vice-president of Lightfoot-Schultz Co., who sailed for Europe early last month, no details are available as from the firm itself to the terms of the agreement. The company has released only a formal statement which is worded as follows:

Lightfoot-Schultz Co. has concluded a labor agreement with the Chemical and Cosmetic Industrial Union, representing those of its employees who are members of the said union.

The agreement provides for an increase in wages and sets forth other terms and conditions of employment.

The agreement is effective as of August 5, 1937.

Build Hydrogenation Plant

Hooker Electrochemical Co., Niagara Falls, N. Y., is building a plant for hydrogenation of fatty oils at its Tacoma, Washington, factory. The new plant will utilize by-product hydrogen from electrolytic caustic soda and chlorine manufacture. The installation will include hydrogen compressors, high-pressure gas storage, hydrogen converters, oil refining equipment and extensive storage facilities for raw and finished oils. Total cost including buildings will be in the neighborhood of $110,000. Alan Porter Lee, Inc., New York, is the consulting and contracting engineer for the installation; Wurster and Sanger, Inc., Chicago, Ill., are associate consulting engineers and McKim, Mead and White, New York City, are the architects. The company's engineering and development departments at Niagara Falls are in charge of the work.

Kutol Products Building

Kutol Products Co., Cincinnati, manufacturer of a cleaning compound, has recently started work on a new one-story building of thoroughly modern construction on Highland Ave., Cincinnati. The new building will be 74 feet wide by 160 feet deep. Edwin G. Werner is the general contractor. The present plant is located at 36 Walnut Street.

Edgar A. Junk Dies

Edgar A. Junk, Ohio sales manager for Haskins Bros. & Co., Omaha, died recently at his home in Columbus, Ohio, at the age of 53. He had been ill with heart trouble for nearly six months. Mr. Junk was a native of Sioux City, Iowa. He first came to Columbus to represent Haskins about 30 years ago and was subsequently placed in charge of sales for the entire Ohio district. He is survived by his wife, Mrs. Helen Junk, two daughters, Mary Jane and Patricia, and two sisters.

Conti Appoints Marshall

D. W. Marshall has recently been named sales representative for Conti Products Corp., New York, in Ohio, Michigan and Indiana. Conti manufactures castile soap, shampoo and liquid shave. Mr. Marshall was formerly connected with Laco Products, Inc.

Thomas M. Sayman Dies

Thomas M. Sayman, president of Sayman Soap Co., St. Louis, died at his home in St. Louis September 6 at the age of 84. Mr. Sayman first operated a traveling medicine show, before going into the soap business. He soon decided, however, that running around the country selling his product would not offer any great future, and settled down in a small store in St. Louis. The business developed rapidly and today the Sayman plant is eight stories high and covers half a city block. Mr. Sayman was something of an eccentric and was well known all over the country for some of his rather unusual ideas. At one time he moved his family into his new soap plant and fitted up luxurious living quarters. This idea was later abandoned. In his home every article carried a price tag, the furnishings including art treasures, famous pieces of historic furniture, silver sets, paintings, etc. Mr. Sayman was famous in his own way for his gifts of soap cakes as was John D. Rockefeller for his gifts of dimes. He would often stop his automobile and hand out soap cakes to children, while advising the mothers on their training. In 1928 Mr. Sayman bought a 2400-acre development in Southwestern Missouri for $105,000 and turned it over to the state for use as a park. Mr. Sayman is survived by his wife and five children.

To Sell Soap Plant

The complete soap plant of Gets There Soap Co., Conshohocken, Pa., has been offered for sale. The sale is necessitated to settle the estate of the former owner. The executor of the estate, who is offering the property for sale, is A. J. Hamlin, 1707 Stenton Ave., Philadelphia.

. CAREFULLY PLANNED SCHEDULES

● Carefully planned schedules in soap production depend not only on the quality of the raw materials used but also the efficiency with which they are serviced. Niagara's modern, large-scale producing facilities and highly systematized delivery service will help you keep your schedules on an up-to-the-minute basis. If you need experienced technical cooperation, let Niagara meet your requirements for

CARBONATE OF POTASH

CAUSTIC POTASH

CAUSTIC SODA

NIAGARA ALKALI COMPANY

Niagara

ALKALI COMPANY

30 EAST 42nd STREET, NEW YORK, N.Y.

Associated with Electro Bleaching Gas Co.
Pioneer Manufacturer of Liquid Chlorine

Jergens Builds on Coast

Construction will soon begin on a new warehouse building at 99 South Verdugo Road, Burbank, Calif., in suburban Los Angeles, for Andrew Jergens Company of California. The structure will be of reinforced concrete, two stories in height, and will have ground dimensions of 64 x 65 feet. Contract has already been let at $36,500.

Colgate Xmas Boxes

Colgate-Palmolive-Peet Co. will feature seven special gift packages for the 1937 Christmas holiday trade. Special composition boxes will be used which will later serve as utility cases.

New Lever Soap Energizer

"Mazo" soap energizer, a new Unilever product, has recently been experimentally introduced in various parts of Britain and is said to have met with the success anticipated. The new product is claimed to make laundry soap more efficient. By adding it to the wash and allowing it to soak for a short time before using soap, "Mazo" is said to make rubbing unnecessary. After experimental introduction in a few more districts, the product will be placed on the national market and widely advertised.

Restrain Avocado Soap

Avocado Soap Products Co., Pasadena, Calif., has been ordered by the U. S. Federal Trade Commission to cease representing in advertising matter or otherwise that its "Avocado Tissue Soap" contains a substantial amount of avocado oil, that it is nature's aid to beauty or has any beneficial effect different from other soap, that it is highly recommended by beauty specialists, and is a distinct aid to beauty.

Alter Unilever Voting

At a meeting of shareholders of the Unilever N. V., held at Rotterdam at the end of August, the proposed alteration in the articles of association was adopted. In accordance with the recently-announced reorganization plan, the change entails the abrogation of the existing restriction on voting rights by which a shareholder was unable to cast more than six votes.

W. B. Hanna Dies

W. B. Hanna, owner of Crown Manufacturing Co., Chicago soap manufacturers, died September 16th of a heart attack. Before taking over the soap company five years ago, he had for many years been president of the Saratoga Laundry Co. Mr. Hanna, who was 72 years old, leaves a sister, Mrs. Ella Griffith.

The Newer Detergents

A survey and summary of the patent and manufacturing situation of the past few years in the much-discussed non-soap detergents . . . an authoritative review of the subject by Dr. Charles E. Mullin . . . a series of articles to begin in an early issue of SOAP.

Colgate Offers Signs

Colgate - Palmolive - Peet Co., Jersey City, is making a special offer to druggists of eight chromium signs to be used in departmentalizing their stores. The signs are of chromium and said to be worth five dollars each. There are signs available for each of the following departments; toiletries, sundries, patents, candies, prescriptions, films, cosmetics, and for toilet soaps.

New Soap Dispensers

U. S. Sanitary Specialties Corp., Chicago, is introducing two new soap dispensers. No. 123 is a new Pullman type with the glass globe, which may be obtained either with straight sides or pear shaped, located under the basin slab. No. 126 is the popular priced push-in valve type. Both models are chromium finished and have several patented features.

Marshall Products Fails

Marshall Products Co., St. Louis, has been declared insolvent in an involuntary petition in bankruptcy filed in the St. Louis federal courts by four creditors. The petitioning creditors and their claims are: Pennsylvania Refining Co., $213; Clifford L. Iorns Co., $184; Schaeffer Bros. & Powell Manufacturing Co., $153; and George S. Mepham Corp., $15.

Offering New Shampoo

Modern Products Laboratories, New York, will shortly introduce a new shampoo under the "444" brand. Norman D. Waters, New York advertising agency, will handle sales promotion.

Forms Gleam-O Co.

A certificate to conduct business under the firm name of Gleam-O Co., manufacturing cleaning powders at 1107 North Hudson Ave., Los Angeles, has been issued to D. H. Anderson, of 1015 North Serrano Avenue, Los Angeles.

Woodbury Xmas Packages

John H. Woodbury, Inc., New York, will offer ten special gift boxes for the 1937 Christmas trade. The packages range in price from 25c to $2.00 and included boxes in each price range for both men and women.

Unilever Acquires Brehm, Ltd.

Unilever, Ltd., the British soap and oil combine, has acquired a controlling interest in the Newfoundland concern of Harvey Brehm, Ltd. A technical expert is being sent to St. John's to reorganize production.

Dutch Cut Oil Taxes

Important alterations in the Dutch decrees governing taxes on fats and oils have just been announced. The levy on fats and oils has been reduced by 5 cents (Dutch) per kilogram, while that on margarine has been reduced so as to reduce the manufacturers' selling price by 5

MODEL S

for SPEED

and SAVINGS

A few of the many well known soaps that are wrapped on our machines.

High speed is the main factor contributing to low cost in soap wrapping. That's why the Model S machine, with a speed of 150 cakes per minute, is the most popular soap wrapper on the market.

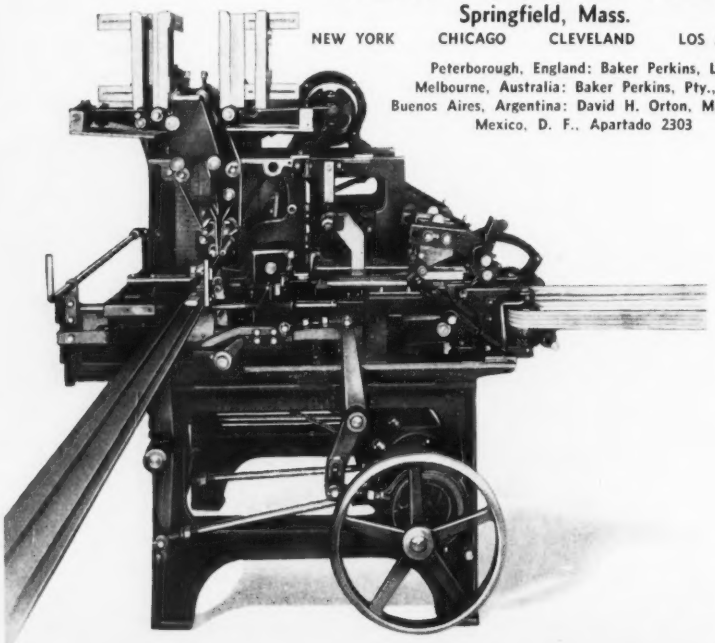
The neat, perfect wrapping it produces is another advantage . . . also its versatility. Model S uses practically any type of wrapping material . . . makes packages using a single wrapper or a combination of wrappers. It may be equipped to insert cardboard or circular between inner and outer wrapper, if desired.

Electric Eye registration, recently introduced, permits use of material in roll form, the machine locating the printed design accurately on the package.

Model S is readily adapted to special requirements, if necessary. You should know more about this remarkable machine. *Write for complete information.*

PACKAGE MACHINERY COMPANY
Springfield, Mass.
NEW YORK CHICAGO CLEVELAND LOS ANGELES

Peterborough, England: Baker Perkins, Ltd.
Melbourne, Australia: Baker Perkins, Pty., Ltd.
Buenos Aires, Argentina: David H. Orton, Maipu 231
Mexico, D. F., Apartado 2303



PACKAGE MACHINERY COMPANY
Over a Quarter Billion Packages per day are wrapped on our Machines

cents per kilogram. The Government hopes that oil and fat producers will also lower their prices. These measures, together with tax reductions on edible fats, will lower the income of the Agricultural Crises Fund by approximately $4,000,000 per annum.

New Sumatra Palm Oil Plant

A new oil palm concern, Sumatra Oil Palm Company, has just been incorporated at Rotterdam under the auspices of the Rotterdamsche Bank Vereiniging. The new company's capital is 1,500,000 florins (approximately $830,000). It has acquired the Soengei Soepat Estates from the E. Moormann Plantation Co. The new concern has placed an order for the erection of a large palm oil factory in Southern Sumatra, with an annual capacity of 3,500 tons of palm oil. The factory will commence operation in the middle of 1938.

To Reduce Whale Oil Output

British and Norwegian whale oil companies, fearing over-production, plan to reduce their output by 50,000 tons to 300,000 tons by employing six floating factories in ordinary tramp trade instead of whale-hunting. These vessels are the Kosmus, 17,801 tons; Vikingen, 14,526 tons; Anglo Norse, 7,988 tons; Polar Chief, 7,166 tons; Strombus, 6,549 tons, and Frango, 6,400 tons. The Norwegian whaling company, Hamburger Walfang, has purchased the floating factory Sydis, 8,263 tons, and has entered into an agreement with the Norwegian Seamen's Union on the same lines as has the German Walterrau concern.

Soap Employment Steady

The index of employment in the soap industry compiled by the U. S. Dept. of Labor registered 102.5 in July, 1937, being unchanged from the June reading. This compares with 93.0 in June, 1936, and 100 for the 3-year average, 1923-1925. The pay-roll index was 114.8 for July, 1937, as compared with 115.1 in June and 91.7 for July, 1936.

Show Soybean Oil Soaps

An exhibit of soaps made from a soybean oil base was included in a soybean exhibit car, sponsored by the American Soybean Assn., which recently started a tour of the country. The car is operating over the lines of the Pennsylvania Railroad and includes a series of exhibits showing the use of soybean products for various food and industrial purposes. The car will continue in operation for another four or five months. The soybean oil soap used in the exhibit was supplied by Davies-Young Soap Co., Dayton, Ohio.

C. S. A. Golf Final

The final golf party of the Salesmen's Association of the American Chemical Industry was held at the Washington Irving Country Club, Tarrytown, N. Y., September 14. E. W. Haley, of Southern Alkali Co., captured the low gross prize, which was the first leg on the cup donated by the Chemists Club. Other winners included:—Class A, low net, W. J. Weed, of Niagara Alkali Co.; class B, low net, T. S. Nichols, of Grasselli chemicals department of E. I. du Pont de Nemours & Co.; low gross, guest, Herbert Finn, of Standard Oil Co. of New Jersey; low putts, Fred Neuberg, of Warner Chemical Co.; 4-tournament kickers, Robert J. Quinn, of Mathieson Alkali Works; kickers, guest, Donald Woodford, of Grasselli chemicals department. Bart Sheehan, of the Grasselli chemicals department, chairman of the entertainment committee of the association, won a special prize donated by Ben Spencer.

B. T. Bush With Verley

Burton T. Bush, who resigned recently as manager of the aromatics division of Naugatuck Chemical Co., division of United States Rubber Products, Inc., New York, has just joined the firm of Albert Verley, Inc., Chicago and New York, as vice-president in charge of production. In his new connection Mr. Bush will make his headquarters in Chicago. In taking up the Verley connection, Mr. Bush is returning to a firm with whom he worked a number of years ago.

Petrie With Orbis

Orbis Products Corp., New York, essential oils, gums and chemicals, have announced the addition to their staff of Arthur J. Petrie, formerly with American Home Products Corp. at the "Kolynos" and "Bi-So-Dol" plant in New Haven.

Archie Tarr Joins Arany

Archie Tarr, formerly advertising manager of Brillo Mfg. Co., Brooklyn, maker of "Brillo," and also Utility Co., New York, maker of "Gre-Solvent," has become associated with Armand R. Arany in the organization of Tarr & Arany, manufacturers' representatives. Mr. Arany was formerly southern sales manager of Brillo Co. and metropolitan sales manager of Utility Co. Tarr & Arany will represent manufacturers in the N. Y. Metropolitan market. Offices are located in the General Motors Building, New York.

Nelson Joins Firmenich

Firmenich & Co., New York, sole United States distributors for the aromatic chemicals and perfume specialties of Chuit Naef, Geneva, Switzerland, have appointed Albert O. Nelson their Chicago representative. Mr. Nelson has had fifteen years experience in the New York essential oil field. At present Rupert C. Watson, vice president of Firmenich & Company's New York house, and Mr. Nelson are visiting the trade in the Chicago territory and preparing to open an office. Warehouse stocks will be carried.

S.C.I. Elects Foster Snell

At the annual general meeting of the Society of Chemical Industry held in July, 1937 at Harrogate, England, Foster Dee Snell was elected a vice-president of the society. This is the first time since 1928 that an American has been elected as an officer of the Society of Chemical Industry.

Oil Chemists Meet Oct. 14

The annual meeting of the American Oil Chemists Society will open at the Hotel La Salle, Chicago, October 14, and continue through the following day. The annual banquet will be held on the evening of Oct. 14th at the Old Heidelburg Inn and a bowling tournament has been arranged for the following evening at the Medinah Club. R. C. Newton of Swift & Co., Chicago, heads the local Chicago committee and has arranged a program which includes the following addresses: "Vapor Pressure of Commercial Soaps" by R. H. Ferguson of Procter & Gamble Co.; "Electrometric Titration of Bichromate Glycerine" by C. P. Long of Procter & Gamble Co.; "Determination of Carbon Dioxide in Detergents" by L. B. Hitchcock and R. E. Devine of Hooker Electrochemical Co.; "Notes on Determination of Alkalinity of Soap Solutions" by W. C. Preston of Procter & Gamble Co.; "Estimation of Glycerol in Fat by the Carius Tube Method" by J. E. Doherty, Lever Bros. Co., and "Unsaponified and Unsaponifiable Determinations as Applied to Incompletely Saponified Soaps" by E. Randa.

White Shoe Cleaners

Their growing importance .. now an all-year market . . . value of various types . . . and a discussion of raw materials, manufacture, and packaging . . . coming in the next issue of SOAP . . . by Ralph H. Auch.

Offer New Vetiver Oil

Fritzsche Bros., Inc., New York essential oil dealers, are now offering a new and selected grade of oil vetiver which is listed as Oil Vetiver, Extra Fine, Seillans. It is said to be distilled from selected roots and is recommended for use by those who want an exceptionally fine product.

Foragers Lunch Oct. 6

The annual fall get-together luncheon of the Foragers of America will be held at the Herald Square Hotel, New York, at 12:00 noon October 6th. Pictures of the summer outing will be shown and prizes will be distributed to winners of the various sporting events which were a feature of the outing.

Detroit Wins at Golf

Golfers representing the Allied Drug and Cosmetic Association of Michigan beat the golfers representing the Chicago Drug and Chemical and Chicago Perfumery, Soap and Extract Associations 51½ to 50½ Sept. 21 at the Birmingham Country Club, Detroit. The victory gives the Detroit association possession of the Fort Dearborn Trophy for one year. H. L. Derby won the prize for low gross with T. C. Sheffield second. The Detroit association proved excellent hosts and did everything possible to make the visit of the Chicago group, which numbered nearly fifty, an enjoyable one. A feature of the banquet was the initiation of a large class into the Royal Order of Yellow Dogs, C. C. Marshall presiding at the ceremonies.

Chemical Show Opens Dec. 6

The Sixteenth Exposition of Chemical Industries is scheduled to open at Grand Central Palace, New York, Dec. 6th, and to continue through the week, closing Dec. 11th. The show will provide an opportunity for manufacturers in the various chemical fields to inspect at first hand the latest developments in process machinery, laboratory apparatus, instruments, chemicals and chemical products. As in previous years the exposition will include as a special feature a Student Course in Chemical Engineering. Prof. W. T. Read, Dean of Chemistry at Rutgers University, who has served as director of the course in previous years, will again be in charge this year.

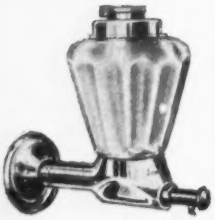
Wm. G. Sibbach Dies

William G. Sibbach, head of W. G. Sibbach & Co., essential oil house located in Maywood, Illinois, died Sept. 19 following an automobile accident near Gary, Indiana on September 3rd. Mr. Sibbach died at the Mercy Hospital in Gary. Mrs. Sibbach escaped with minor injuries.

BOBRICK Sop-O-zoN DISPENSERS

Thirty-one years of specializing in the development and manufacture of one product has produced a line of dispensers combining beauty of design, simplicity of installation, and long trouble-free service.

INDIVIDUAL TYPE LIQUID SOAP DISPENSERS



No. 7A
Wall Bracket
Chromium

NOS. 7A and 8A

One-piece solid bronze body and bracket. Streamlined design. Hinged lock top. Valve parts nickel silver and stainless steel. Theft-proof . . . screws and toggles concealed. Dispenses soap in palm of hand. Colored glass globes or metal globes at slightly higher prices. In keeping with the finest plumbing installations.

No. 8A
Slab Bracket
Chromium

NOS. 10A and 12A

Heavy pressed steel body-white porcelain on steel finish. Metal parts Chromium. Easy to clean. Hinged filler cap locks. Cast bronze cylinder. Valve parts nickel silver and stainless steel. Theft-proof. Made in two sizes. Fawn, green, or black finish slightly extra. The heavy duty dispenser.

No. 10—Pint Size
No. 12—Quart Size

No. 9
Nickel Finish

NO. 9

A sturdy pressed steel low priced dispenser with all the advantages of the push-in valve. Clear glass globe. Stainless steel piston. Large screw filler cap.

NO. 829

Installed through the faucet hole of any basin. Valve casting nickel silver. Fills from top by unscrewing push button. Can be supplied with shank to fit basins up to 4½" thick. Also metal jars.

No. 829
Pullman

LATHURN

Dispenses a creamy lather with any liquid soap. Can't possibly leak because liquid will not flow up hill. Moving parts made of stainless steel and monel metal. Filler cap is chained and unlocks with key furnished. Theft-proof installation. The soap supply is always visible, yet the glass globe is protected by the metal case.

Lathurn
Chromium

POWDERED SOAP DISPENSERS

No. 31

The operating mechanism of both these powdered soap dispensers agitates the soap and delivers a measured quantity at each press of the plunger. The No. 25 is the conventional glass jar type. The No. 31 is made from heavy pressed steel with white vitreous enamel finish. Theft-proof installation, all parts enclosed and locked.

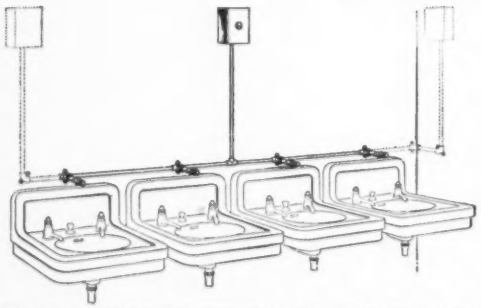
No. 25

HOSPITAL DISPENSERS

The No. 813 shown in cut is foot-operated. We also manufacture knee and hand-operated models, and individual type hospital and surgical dispensers. All body castings solid bronze chromium finish with nickel silver or stainless steel parts. Write for literature.

No. 813
Foot Operated

GRAVITY FEED LIQUID SOAP SYSTEMS



Either complete systems with all parts and pipe cut to size and threaded ready to assemble, or the individual parts as desired can be furnished. Write for special literature.

China Tanks
831—1 gal.
832—2 gal.
833—5 gal.

Iron-Soap Proof
Lacquer Finish
906—1 gal.
907—2½ gal.
908—5 gal.

Factory Type
920—1 gal.
901—3 gal.
902—5 gal.

C-866
Pullman
Valve

C-860
Dispenses Liquid

Lathervalve
Dispenses Lather

C-863
For Showers

BOBRICK MANUFACTURING CORPORATION

111-117 Garey Street
Los Angeles, Calif.

G. H. WOOD & CO.
Toronto
Canadian Distributors

215 Fourth Avenue
New York City

Contracts Awarded

Brooklyn Soap Awards

In a recent opening by Brooklyn, N. Y. quartermaster the following awards were made: On 98,700 lbs. laundry soap, Armour & Co., Chicago, was awarded contract at 4.08c a lb. On 7,000 cakes grit soap, Hunnewell Soap Co., Cincinnati, got the award at 3.1c per cake, and on 62,700 cakes floating soap, Kirkman & Son, Brooklyn, was the successful bidder at 3c per cake.

Chip Soap Bids

Low bidders on 4,025 lbs. chip soap in a recent opening by U. S. Marine Corps, Washington, D. C., were: Iowa Soap Co., Burlington, Iowa, 7.88c, John T. Stanley Co., New York, 7.92c, Procter & Gamble Distributing Co., Baltimore, 8.14c, and Hecker Products Corp., New York, 8.27c.

Low Bidder on Cleaner

N. Brittingham & Sons, Philadelphia, were low bidders on 1,925 lbs. cleaning compound for delivery to U. S. Marine Corps, Washington, D. C. in a recent bidding at a price of 3.48c.

Laundry Soap Awards

Jordan-Stevens Co., Minneapolis, has been awarded a contract on 12,000 lbs. laundry soap at $684.43 to be delivered to Montana engineer at Fort Peck. Procter & Gamble Distributing Co., Minneapolis, was the lowest bidder on an additional 12,000 lbs. laundry soap at a price of $724.30 but no award was made.

Fort Sam Houston Awards

The following have been awarded contracts on materials to be supplied to the Texas quartermaster at Fort Sam Houston: On 717 pts. metal polish, Marjo Products Co., Chicago at 8.5c; on 6.122 bars toilet soap, Hecker Products Corp., New York at 3.57c, and on 40,440 lbs. laundry soap, Kirkman & Son, Brooklyn at a price of 4.62c.

Insecticide Award

Arthur S. Lapine & Co., Chicago, has been awarded a contract on 6,300 gals. insecticide for delivery to quartermaster at Fort Sheridan, Ill., at $1.75, destination.

U. S. Marine Corps Bids

Low bidders in a recent opening by U. S. Marine Corps, Washington, D. C. on 275 gals. insecticide were: Duryea Products Co., Washington, 42c; Crystal Soap & Chemical Co., Philadelphia, 45c; H. V. Smith & Co., St. Paul, Minn., 57c, and Marjo Products Co., Chicago, 58c.

Soap Awards

Contracts on soap for delivery to Missouri quartermaster at St. Louis were awarded recently as follows: On 2,000 cakes grit soap, Hunnewell Soap Co., Cincinnati, 2c per cake; on 44,640 lbs. laundry soap, Procter & Gamble Distributing Co., St. Louis, 4.19c; and on 45,900 cakes toilet soap, Haskins Bros. & Co., Sioux City, Iowa, 3.008c a cake.

Veteran Supply Bids

In a recent opening by the Procurement Division of the U. S. Veterans Administration, Washington, D. C., Green Oil Soap Co., Chicago, was low bidder on two lots of green soap. The price on the first lot of 8,000 lbs. was 10.55c Chicago. On the second, 9,000 lbs., 10.49c, Perry Point. Crystal Soap & Chemical Co., Chicago, was low bidder on 1,750 gals. cresol, for Chicago at $1.08 and on 1,250 gals. for Perry Point at $1.02.

Restrain Trade Laboratories

Trade Laboratories, Newark, N. J., have been ordered by the Federal Trade Commission to cease and desist from certain unfair methods of competition in connection with the sale of dental, shaving and facial creams and other toilet articles. The order directs the concern to cease representing, by marking an exaggerated price upon the cartons in which its products are sold, that the prices so marked are the regular retail prices. The concern is prohibited from representing, by placing any of its products in greatly over-sized cartons, that a substantially larger quantity of such product is therein contained than is actually the case. The firm is also ordered to stop representing that its products are manufactured under the supervision of a physician, when such is not a fact; or that a laboratory is operated, when this is not the case.

New Olive Foots Plant

The new plant of G. Maselli & Sons, nearing completion near Strathmore, Calif., for the manufacture of olive oil, will also produce olive oil foots, to be sold for soap making and other inedible purposes, a new enterprise for California. The new factory will cost more than $30,000. The company has other plants in Fresno and Lindsay, Calif.

White King Radio Contest

A radio contest is being conducted by White King Soap Co., of Los Angeles, from its San Francisco office, offering 2226 prizes to Pacific Coast customers. A Columbia Network radio program, "School Days of the Air," heard on Monday nights, is part of the campaign in which retailers assist with banners, cards and entry blanks. Among the prizes are ranges, washing machines and ironers, and Norge refrigerators.

P. & G. Names Collins

S. G. Collins has recently been appointed district sales manager for Procter & Gamble Co. in Arkansas, Tennessee and Kentucky. He succeeds Clayton H. Smith who retired a short time ago after 42 years service with the company.

FOR BETTER-ODORED SOAPS . . . .

CONCRETE LAVENDER COLORLESS

This outstanding specialty of our Seillans plant is particularly worthy of the soap-maker's consideration. Practical application has proven that it produces a smoother, stronger and more enduring fragrance than the costlier distilled oil of lavender. This is due largely to our process of manufacture which results in complete extraction of the flower's natural odorizing principles as well as its natural fixatives. Usually a combination of CONCRETE LAVENDER COLORLESS with pure distilled oil of lavender is recommended for best results. This will produce a superior and more lasting fragrance at an appreciably lower cost.

CONCRETE LABDANUM

Because of the deliciously agreeable note it contributes to the odor complex and for its marked fixative properties, LABDANUM CONCRETE is generally conceded to be the most valuable and widely used of all gums, balsams and resins. Our process of manufacture preserves the true odor of labdanum along with the other qualities for which this material is most desired. We guarantee both of these Concretes to give entire satisfaction and suggest a trial as the best proof of their worth.

FRITZSCHE Brothers, inc.

816 WEST 8TH STREET LOS ANGELES, CAL.
Proprietors of PARFUMERIES de SEILLANS Seillans, France
FRITZSCHE BROTHERS, of Canada, Ltd., 77 79 Jarvis St., Toronto, Canada

PORT AUTHORITY COMMERCE BLDG.
76 NINTH AVENUE, NEW YORK, N. Y.
118 WEST OHIO ST. CHICAGO, ILL.

New Fitch Campaign

The new advertising campaign for F. W. Fitch Co., Des Moines, on "Fitch's Dandruff Remover Shampoo" features a guarantee backed by Lloyd's of London that the product will remove dandruff with one application. This newest development follows a controversy that developed last year after Fitch had offered $1,000 to anyone who could prove that dandruff is caused by a germ. The $1,000 was claimed by Applied Research Laboratories, Dayton, N. J., consultants for Lambert Pharmacal Co., St. Louis, who reported that their research showed that dandruff is caused by the germ, *Pityrosporon ovale*. The Fitch Co. contested this finding and was sustained by two dermatologists in a refusal to pay the $1,000.

Auch with Seagram

Ralph H. Auch who recently resigned as superintendent and chief chemist for the American Products Co., Cincinnati, and who had been with that firm for the past six years, is now superintendent of bottling operations for the Joseph E. Seagram, Julius Kessler, Lincoln Inn Distilleries at Lawrenceburg, Ind. Mr. Auch is well known in the drug, cosmetic, and household products fields as an authority on production methods and formulation.

P. & G. on Canadian Radio

Procter & Gamble Co. has just made arrangements to have the "P. & G. Ranger Program" broadcast over ten Canadian radio stations. The program will feature cowboy songs and music and will be used to stimulate sales of "P. & G. White Naphtha Soap."

Toilet Soap Prospect

A firm of Goteborg, Sweden, is interested in purchase of toilet soaps of American manufacture. Full particulars may be obtained by addressing the U. S. Bureau of Foreign & Domestic Commerce, Washington, D. C., mentioning inquiry No. 4000.

New Trade Marks

The following trade-marks were published in the September issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

BRIDAL BOUQUET—This together with picture of bouquet describing soap. Filed by Wilson & Co., Chicago, July 12, 1937. Claims use since March, 1898.

FLOOR-BRITE—This in reverse against circular background, describing wax polish. Filed by Charles W. Berg Laboratories, Philadelphia, July 14, 1936. Claims use since Oct. 11, 1935.

NUSHENE—This in solid letters describing detergents. Filed by Speare Supply Co., Chicago, July 20, 1936. Claims use since Nov. 16, 1935.

DAIRY CALGONITE—This in solid letters describing detergent. Filed by Calgon, Inc., Pittsburgh, Mar. 30, 1937. Claims use since Feb. 27, 1937.

HAND CALGONITE — This in solid letters describing detergent. Filed by Calgon, Inc., Pittsburgh, Mar. 30, 1937. Claims use since Oct. 20, 1936.

444 FIFTH AVENUE—This in solid script describing soap. Filed by S. H. Kress & Co., New York, Apr. 23, 1937. Claims use since June, 1936.

WHITE WINGS—This in outline letters with wing illustration describing cleanser. Filed by Kraft Products Co., Altoona, Pa., June 18, 1937. Claims use since Mar. 1, 1934.

SEAOLA—This in solid script describing soaps. Filed by Rain Lab., New York, June 23, 1937. Claims use since June 1, 1937.

ANY SPOT—This together with picture of dog and cat describing insect powder for animals. Filed by C. D. Jordan Laboratory, Monticello, Ga., May 10, 1937. Claims use since March, 1936.

VAPACK—This in solid letters describing deodorant. Filed by Fuld Bros., Baltimore, Md., June 8, 1937. Claims use since September, 1935.

MOLLITOL—This in solid letters describing shampoo. Filed by Los Angeles Soap Co., Los Angeles, July 3, 1937. Claims use since May 20, 1937.

T S D—This on diamond shaped reverse plate with picture of snail describing slug and snail destroyer. Filed by Maureen Chemical Co., Seattle, Wash., July 17, 1937. Claims use since July 1, 1937.

POROFOS — This together against background of "G C" trademark, describing detergents. Filed by General Chemical Co., New York, July 7, 1937. Claims use since Dec. 16, 1936.

DENT-O-BAR — This in solid letters describing dentifrice. Filed by Air-O-Dent Co., Chicago, June 19, 1937. Claims use since May 27, 1937.

PRO-PHY-LAC-TIC—This in solid script describing tooth powder. Filed by Pro-phy-lac-tic Brush Co., Northampton, Mass., June 22, 1937. Claims use since September, 1884.

BLUE TOP—This in reverse against blue background with picture of top describing cleanser. Filed by Stanley Paint & Varnish Co., New York, July 3, 1937. Claims use since Dec. 7, 1934.

Trade Marks Granted

349,478. Polish and Wax. Bangs Products, Inc., Linden, N. J. Filed September 24, 1936. Serial No. 383,567. Published December 8, 1936. Class 16.

349,491. Antiseptic. Poehlmann Laboratory, San Rafael, Calif. Filed November 10, 1936. Serial No. 385,467. Published June 15, 1937. Class 6.

349,505. Moth Preparations. Bloomingdale Bros., New York. Filed December 28, 1936. Serial No. 387,170. Published June 22, 1937. Class 6.

349,538. Insecticide. Fred D. Naylor, Groton, Mass. Filed February 25, 1937. Serial No. 389,369. Published June 22, 1937. Class 6.

349,551. Toothpaste. R. H. Macy & Co., New York. Filed March 6, 1937. Serial No. 389,742. Published June 15, 1937. Class 6.

349,578. Insecticides. Black Flag Co., Baltimore, Md. Filed March 19, 1937. Serial No. 390,260. Published June 15, 1937. Class 6.

349,597. Fly Sprays. Ohio Oil Co., Findlay, Ohio. Filed March 29, 1937. Serial No. 390,662. Published June 22, 1937. Class 6.

349,642. Shaving Cream. Pinaud Inc., New York. Filed April 13, 1937. Serial No. 391,287. Published June 22, 1937. Class 4.

349,689. Scouring Powder. Boyer Chemical Laboratory Co., Chicago, Ill. Filed April 24, 1937. Serial No. 391,799. Published June 22, 1937. Class 4.

349,693. Toilet Soap. Recorg Supply Corp., Chicago. Filed April 24, 1937. Serial No. 391,826. Published June 22, 1937. Class 4.

349,704. Insecticide. S. B. Penick & Co., New York. Filed April 27, 1937. Serial No. 391,925. Published June 22, 1937. Class 6.

349,802. Soap. Franklin Simon & Co., New York. Filed April 3, 1937. Serial No. 390,906. Published June 29, 1937. Class 4.

349,806. Cleanser. Ripley Products Co., Los Angeles. Filed April 8, 1937. Serial No. 391,072. Published June 29, 1937. Class 4.

349,839. Cleaner. McCall Merchandising Co., Cincinnati, Ohio. Filed May 4, 1937. Serial No. 392,180. Published June 29, 1937. Class 4.

349,859. Deodorant. Norwich Pharmacal Co., Norwich, N. Y. Filed May 6, 1937. Serial No. 392,388. Published June 29, 1937. Class 6.

349,923. Insecticide. Willis

Products, Brooklyn, N. Y. Filed December 4, 1936. Serial No. 386,565. Published July 6, 1937. Class 6.

349,939. Soap. Kool Kake Soap Products, Miami, Fla. Filed March 5, 1937. Serial No. 389,672. Published July 6, 1937. Class 4.

349,966. Insecticides. Derris, Inc., New York. Filed April 2, 1937. Serial No. 390,842. Published July 6, 1937. Class 6.

350,071. Soap. Los Angeles Soap Co., Los Angeles. Filed May 3, 1937. Serial No. 392,228. Published June 29, 1937. Class 4.

Modern Soap Press

(*From Page* 34)

teresting men. One day only a few years ago, he told me that as a boy fourteen years old he came to America from England, landing in New York with ten shillings as his sole financial stake. He related how he began making soap and had enjoyed and stuck to his work. His dress and manner were entirely unassuming. He might have been taken for a superannuated pensioner of the business. He had amassed one of New York's fortunes but he concluded the story without remotely touching on that fact.

Mr. Andrew Jergens, founder of the concern which bears his name, was level headed and given more to deeds than to words. On one occasion, he said he would have a space in his factory where I was to install some machinery, partitioned off and ready for it by the following Monday. On Saturday morning before that day I went to see how the work was progressing and was surprised to find Mr. Jergens busy with saw, hammer and nails, skilfully erecting the partition. His factory carpenters could not get to the job and he was taking care of it rather than disappoint me.

Mr. Allen B. Wrisley, was a pioneer soap maker among pioneers. I used to see him when he was well past 80 hard at work in his factory. Tall and straight as "Uncle Sam," his blue eyes clear as a boy's, he was as alert as most men half his age. He was a keen motorist and thoroughly sold on Stanley Steamers. He almost converted me to them.

Mr. Joseph Fels of Fels-Naptha fame wrote me before I came to Cincinnati that he would like to meet me at the Grand Hotel here early on a certain morning to discuss the possibility of applying an advertisement to his soap with paraffin We met as agreed before breakfast. During the meal, he expressed a desire to see a demonstration of my process and we went to his room on that business. I had brought along an outfit for melting and applying the wax. When the demonstration was concluded I threw the paraffin, about a pound which I did not think worth carrying home, into a waste basket. Mr. Fels promptly recovered, wrapped and handed it to me with the admonition that a young man with business aspirations should practice economy. He had a wide reputation for philanthropy, which he was doubtless better able to acquire because of his aversion to wastefulness.

Mr. Bibby, owner of Bibby's in Liverpool, was a pioneer soap maker in England. Though somewhat younger, he reminded me of Mr. Wrisley. Once he had me to dinner where we had to climb a flight of stairs. He took the steps two at a time while I found it more agreeable to take them singly. He wanted to call his employees together and have me tell them about prohibition over here, but those men were operating a lot of our presses and I thought it wiser to say nothing on a subject that was just then highly controversial in England.

I have met most well-known soap makers of this century here and abroad. Among these were Lord Leverhulme and Colonel Procter. While neither of these gentlemen was, strictly speaking, a pioneer, the distinction of being the world's greatest soap maker certainly lay between them. Lord Leverhulme was short of stature and wore a white top hat to make up for his lack of inches. He dressed carefully and traveled in state. Advertising was his hobby though he made sure that production was not neglected.

Colonel Procter was tall and rugged. His dress gave him little concern. I frequently saw him in cold weather without an overcoat driving his Packard car with its top down. Like his philanthropies, his energy was unsurpassed. He was reputed to know from top to bottom every phase of Procter & Gamble's activities.

The Potter Drug & Chemical Company, when I was first in their plant, were pressing Cuticura soap on a press which operated on the theory that a quick, powerful stroke was required. The dies came together with a terrific bang, which shook the whole building. To paraphrase Stevenson "The sound of the press was in all its chambers." Many soap makers and machine builders held that all this was necessary. Now we know that the more gradually pressure is applied and the longer it lasts, the better the work. Mr. White, owner of Cuticura spared no expense on his buildings or equipment. He had two complete factories on his grounds. One was in operation and the other farther from the street was ready for production in case fire interfered with the first. I was shown through both.

FORMERLY, many inexperienced buyers of labor-saving machines allowed themselves to be swayed by personal reasons or vague testimonials, and some through a desire to save time, took the first offered. But now, a fuller realization of the difference in various brands, and of the red ink avoided by proper selection, has changed all this. Production managers now inspect machines with reference to design, material and workmanship. They see them perform and learn from users how they perform for them. They also learn how the maker is in the habit of living up to his sales talk, and if he keeps complete drawings of his machines against the day when duplicate parts may be needed.

Since there is always something new, experienced users as well should keep posted. Few machines have had a more rapid and constant or a comparatively greater development than soap presses and carton-

(*Turn to Page* 115)

Raw Material Markets

(As of September 27, 1937)

NEW YORK — Prices in the market for soapmaking oils and fats continued to point downward this period, under the influence of the heavy supplies of cottonseed oil and lard which will shortly come on the market from heavy current production. The result was that quotations on the important soapmaking raw materials broke through to the lowest levels of the year. There were elements of strength in some sections of the market, with tung oil advancing because of the spread of hostilities in China and carrying other drying oils up with it, but in the rest of the list the trend was downward.

In the perfuming material group, the important developments were in anise and cassia, which are both sharply higher in price this period as a result of spread of the conflict in China. In the insecticide raw material group there were reports that many suppliers are running behind on deliveries. The demand for insecticide raw materials has been exceptionally heavy this year, and the season unduly prolonged.

OILS and FATS

Changes in the oil and fat situation from 1935 to date are reviewed and analyzed in a bulletin, FOS-7, just issued by the Bureau of Agricultural Economics of the U. S. Department of Agriculture. According to this study, production of oils and fats in 1936 was more than three-quarters of a billion pounds above the low 1935 figure of six billion pounds. Crop reports from current production indicate that 1937 figures may greatly exceed those for 1936.

Coconut Oil

After dropping to a low of 4¼c for November New York tanks at one point this past month, a mild recovery was noted in coconut oil due to strength which developed in the copra market. Quotations on New York tanks regained part of the ground lost and closed at 4½c. The market was quiet, with weakness in competing oils making buyers inclined to hold off.

Corn Oil

Corn oil prices eased off this period, under the influence of lower quotations on competing oils and fats. The market level dropped to 7c from 7¾c, but as there were few offers at this figure the market was practically nominal. Latest figures on the current corn crop, as of September 1, indicate a production of 2,549,281,000 bushels as compared with 1,529,327,000 bushels last season.

Greases

Under the influence of lower tallow and lard quotations, the grease group moved lower this period, with losses averaging three-quarters of a cent per pound. House and yellow grades are quoted currently at 6⅝ to 6⅞c per lb.

Cottonseed Oil

Cottonseed oil prices dropped further this period, as the government's September 1 crop report prophesied a further increase in cotton production this year. The latest estimate is 16,098,000 bales, as compared with the previous estimate of 15,593,000 bales, and the 1936 production of 12,399,000 bales.

Tallow

Tallow prices again declined fractionally this period, with the quotation on city extra dropping to 7⅜c per lb. The market was inactive at this level, with buyers holding off for further developments and sellers disinclined to press at the decline.

PERFUMING MATERIALS

Anise Oil

After advancing sharply earlier this period, the market for anise oil went on a strictly nominal basis later in the period when dealers found it impossible to get quotations, let alone replacement stocks, from the primary market. Dealers are supplying regular buyers with small quantities of oil at $1.20 to $1.25 per lb.

Bergamot Oil

An advance of 10c per lb. was noted in bergamot oil this period, as dealers advanced spot prices to a point more in line with replacement values. The current market is $3.80 to $4.00.

Cassia Oil

Cassia followed the same course as anise, and this market is also nominal at $1.25 per lb. Regular buyers are being supplied with spot requirements.

Citronella Oil

Both Java and Ceylon citronella oil were quoted higher this period. With demand reported good, there was less of the strong competitive character that has been noted in recent months. Java oil is quoted at 50 to 52c, with Ceylon oil at 42 to 44c per lb.

Pennyroyal Oil

With domestic crop prospects good, quotations on oil pennyroyal were reduced to a basis of $1.50 to $1.55 per lb.

MISCELLANEOUS

Naphthalene

A feature of the market for coaltar chemicals was the announcement late this period that prices on refined naphthalene would be renewed for 1938.

Raw Material Prices

(As of September 22, 1937)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C. P., drums	lb.	$ .06	$ .06½
Acid. Boric, bbls., 99½%	ton	95.00	100.00
Cresylic, drums	gal.	.89	.93
Low boiling grade	gal.	.92	.96
Oxalic, bbls.	lb.	.11½	.12¼
Adeps Lanae, hydrous, bbls.	lb.	.16	.18
Anhydrous, bbls.	lb.	.17	.19
Alcohol, Ethyl, U. S. P., bbls.	gal.	4.14	4.19
Complete Denat., SD 1, drums, ex.	gal.	.32	.37
Alum. Potash lump	lb.	.03½	.03¾
Ammonia Water, 26°, tanks, dlvd.	lb.	.05	.05¼
Ammonium Carbonate, tech., bbls	lb.	.08	.12½
Bentonite 1	ton	—	16.00
Bentonite 2	ton	—	11.00
Bleaching Powder, drums	100 lb.	2.25	2.60
Borax, pd., cryst., bbls., kegs	ton	47.00	67.00
Carbon Tetrachloride, car lots	lb.	—	.05¼
Caustic, see Soda Caustic, Potash Caustic			
L. C. L.	lb.	.07	.08
China Clay, filler	ton	10.00	25.00
Cresol, U. S. P., drums	lb.	.12	.12½
Creosote Oil	gal.	.13½	.14
Feldspar (200 to 325 mesh)	ton	14.00	15.00
Formaldehyde, bbls.	lb.	.05¾	.06¼
Fullers Earth	ton	15.00	24.00
Glycerine, C. P., drums	lb.	.21½	.22
Dynamite, drums	lb.	.21½	.22
Saponification, drums	lb.	.16	.16½
Soap, lye, drums	lb.	.14½	.15
Hexalin, drums	lb.	—	.30
Kieselguhr, bags	ton	—	35.00
Lanolin, see Adeps Lanae.			
Lime, live, bbls.	per bbl.	1.70	2.20
Mercury Bichloride, kegs	lb.	.71	.76
Naphthalene, ref. flakes, bbls.	lb.	.07¼	.07½
Nitrobenzene (Myrbane) drums	lb.	.09	.11
Paradichlorbenzene, bbls., kegs	lb.	.16	.25
Petrolatum, bbls. (as to color)	lb.	.02	.07¼
Phenol, (Carbolic Acid), drums	lb.	.13¼	.14¼
Pine Oil, bbls.	gal.	.70	.85
Potash, Caustic, drums	lb.	.06¼	.06½
Flake	lb.	.07	.07¼
Potassium Carbonate, solid	lb.	.07¼	.09½
Liquid	lb.	.03½	.03¾
Pumice Stone, powder	100 lb.	3.00	4.00
Rosins (600 lb. bbls. gross for net)—			
Grade B to H, basis 280 lbs.	bbl.	8.75	9.15
Grade K to N	bbl.	9.15	9.30
Grade WG and X	bbl.	9.45	9.95
Wood FF Spot	bbl.	8.70	9.65
Rotten Stone, pwd. bbls.	lb.	.02½	.04½
Silica	ton	20.00	27.00
Soap, Mottled	lb.	.04⅛	.04⅜
Olive Castile, bars	lb.	.26	.35
Olive Castile, powder	lb.	.28	.38
Powdered White, Neutral	lb.	.19½	.21½
Olive Oil Foot, bars, 68-70%	lb.	.09	.09½
Green, U. S. P.	lb.	.08	.09½
Tallow Chips, 88%	lb.	.09	.09½
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.23	1.50
Car lots, in bulk	100 lb.	—	1.05
Soda Caustic, cont., wks., solid	100 lb.	—	2.60
Flake	100 lb.	—	3.00
Liquid, tanks	100 lb.	—	2.25
Soda Sal., bbls.	100 lb.	$1.10	$1.30
Sodium Chloride (Salt)	ton	11.40	14.00
Sodium Fluoride, bbls.	lb.	.07¼	.08¾
Sodium Hydrosulphite, bbls.	lb.	.19	.20
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.35	1.75
Tar Acid Oils, 15-25%	gal.	.22½	.30½
Triethanolamine	lb.	.20	.25
Trisodium Phosphate, bags, bbls.	lb.	.03	.03½
Zinc Oxide, lead free	lb.	.06	.06¼
Zinc Stearate, bbls.	lb.	.20	.22

Oils — Fats — Greases

Babassu, tanks, futures	lb.	.07½	.07¾
Castor. No. 1, bbls.	lb.	.10¾	.11½
No. 3. bbls.	lb.	.10¼	.11
Coconut (without excise tax)			
Manila, tanks, N. Y.	lb.	.04½	—
Tanks, Pacific coast, futures	lb.	.04½	Nom.
Cod, Newfoundland, bbls.	gal.	.52	Nom.
Copra, bulk, coast	lb.	.0255	.0260
Corn, tanks, mills	lb.	.07	Nom.
Cottonseed, crude, tanks, mill	lb.	—	.06½
PSY, futures	lb.	.07¼	.07½
Degras, Amer., bbls.	lb.	.07⅜	Nom.
English, bbls.	lb.	.07⅜	Nom.
Neutral bbls.	lb.	.12	Nom.
Greases, choice white bbls., fob Chicago	lb.	.07½	.08⅛
Yellow	lb.	.06⅝	.06⅞
House	lb.	.06⅝	.06⅞
Lard, City	lb.	.12¼	.12½
Compound tierces	lb.	.10¾	.11
Lard Oil,			
Extra, bbls.	lb.	—	.12¾
Extra, No. 1, bbls.	lb.	—	.11½
No. 2, bbls.	lb.	—	.11
Linseed, raw, bbls.	lb.	.1100	.1140
Tanks, raw	lb.	—	.1040
Boiled, 5 bbl. lots	lb.	.1220	1240
Menhaden, crude, tanks, Balt.	gal.	.38	Nom.
Oiticica Oil, tanks	lb.	.17	Nom.
Oleo Oil, No. 1, bbls., N. Y.	lb.	—	.13
No. 2, bbls., N. Y.	lb.	—	.12¼
Olive, denatured, bbls., N. Y.	gal.	1.30	Nom.
Foots, bbls., N. Y.	lb.	.10¾	Nom.
Palm, shipment	lb.	.04¼	—
Palm Kernel, shipment	lb.	.04¾	Nom.
Peanut, domestic, tanks	lb.	.07	Nom.
Rapeseed Oil, denat.	gal.	.95	.96
Red Oil, distilled, bbls.	lb.	.10⅞	.11⅞
Saponified, bbls.	lb.	.10⅞	.11⅞
Tanks	lb.	—	.10
Sesame Oil, dms.	lb.	.10¾	Nom.
Soya Bean, domestic tanks, saponified, f.o.b. West	lb.	.08½	—
Stearic Acid.			
Double pressed	lb.	.12	.13
Triple pressed, bgs.	lb.	.14¾	.15¾
Stearine, oleo, bbls.	lb.	.08½	.09
Tallow, special, f.o.b. plant	lb.	—	.07¼
City, ex. loose, f.o.b. plant	lb.	—	.07⅜
Tallow oils, acidless, tanks, N. Y.	lb.	—	.10¾
Bbls., c/l N. Y.	lb.	—	.11¼
Teaseed Oil, crude	lb.	.09¼	.09½
Whale, refined	lb.	.1010	.1030

(As of September 22, 1937)

Essential Oils

Almond, Bitter, U.S.P.	lb.	$2.75	$3.00
Bitter, F. F. P. A.	lb.	3.00	3.25
Sweet, cans	lb.	.83	.90
Anise, cans, U. S. P.	lb.	1.25	Nom.
Bay tins		1.35	1.50
Bergamot, coppers	lb.	3.80	4.00
Artificial	lb.	1.25	1.40
Birch Tar, rect. tins	lb.	.70	.75
Crude, tins	lb.	.14	.17
Bois de Rose, Brazilian	lb.	1.25	1.35
Cayenne	lb.	2.75	3.00
Cade, cans	lb.	.38	.52
Cajeput, native, tins	lb.	.56	.57
Calamus, tins	lb.	3.00	3.50
Camphor, Sassy, drums	lb.	.16	.17
White, drums	lb.	.18	.19
Cananga, native, tins	lb.	1.75	2.25
Rectified, tins	lb.	3.00	3.35
Caraway Seed	lb.	2.10	2.25
Cassia, Redistilled, U. S. P.	lb.	1.25	Nom.
Cedar Leaf, tins	lb.	.95	1.10
Cedar Wood, light, drums	lb.	.26	.30
Citronella, Java, drums	lb.	.50	.52
Citronella, Ceylon, drums	lb.	.42	.44
Clove, U. S. P., tins	lb.	1.15	1.17
Eucalyptus, Austl., U. S. P. cans	lb.	.45	.54
Fennel, U. S. P., tins	lb.	1.20	1.30
Geranium, African, cans	lb.	4.00	4.75
Bourbon, tins	lb.	3.75	4.00
Turkish	lb.	2.90	3.00
Hemlock, tins	lb.	1.05	1.10
Lavender, U. S. P., tins	lb.	2.25	6.00
Spike, Spanish, cans	lb.	1.05	1.10
Lemon, Ital., U. S. P.	lb.	3.15	3.75
Cal.	lb.	2.75	—
Lemongrass, native, cans	lb.	.42	.43
Linaloe, Mex., cases	lb.	1.15	1.20
Nutmeg, U. S. P., tins	lb.	1.25	1.30
Orange, Sweet, W. Ind., tins	lb.	2.10	2.20
Italian cop	lb.	2.75	3.50
Distilled	lb.	—	.90
Cal.	lb.	2.50	—
Origanum, cans, tech	lb.	1.00	1.25
Palmarosa	lb.	3.10	3.20
Patchouli	lb.	5.00	8.00
Pennyroyal, dom.	lb.	1.50	1.55
Imported	lb.	1.40	1.50
Peppermint, nat., cans	lb.	2.45	2.70
Redis., U. S. P., cans	lb.	2.65	2.90
Petitgrain, S. A., tins	lb.	1.10	1.20
Pine Needle, Siberian	lb.	1.05	1.10
Rose, Natural	oz.	5.25	22.50
Artificial	oz.	2.00	3.00
Rosemary, Spanish, tins	lb.	.56	.75
drums	lb.	.51	.55
Sandalwood, E. Ind., U. S. P.	lb.	4.80	5.50
Sassafras, U. S. P.	lb.	.90	1.05
Artificial, drums	lb.	.39	.40
Spearmint, U. S. P.	lb.	2.00	2.05
Thyme, red, U. S. P.	lb.	.95	1.25
White, U. S. P.	lb.	1.05	1.35
Vetivert, Bourbon	lb.	9.00	18.00
Ylang Ylang, Bourbon	lb.	3.50	6.00

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.25	$2.25
Amyl Cinnamic Aldehyde	lb.	1.55	2.00
Anethol	lb.	1.20	1.25
Benzaldehyde, tech.	lb.	.60	.65
U. S. P.	lb.	1.20	1.30
Benzyl, Acetate	lb.	.55	1.00
Alcohol	lb.	.65	1.15
Citral	lb.	1.70	3.15
Citronellal	lb.	1.10	1.25
Citronellol	lb.	1.90	2.15
Citronellyl Acetate	lb.	4.50	7.00
Coumarin	lb.	3.10	3.30
Cymene, drums	gal.	.90	1.25
Diphenyl oxide		.70	1.00
Eucalyptol, U. S. P.	lb.	.58	.60
Eugenol, U. S. P.	lb.	2.00	2.50
Geraniol, Domestic	lb.	.75	2.00
Imported	lb.	2.00	3.00
Geranyl Acetate	lb.	2.00	2.50
Heliotropin	lb.	2.00	2.10
Hydroxycitronellal	lb.	3.50	9.00
Indol, C. P.	oz.	2.00	2.50
Ionone	lb.	3.25	5.50
Iso-Eugenol	lb.	3.00	4.25
Linalool	lb.	1.65	2.25
Linalyl Acetate	lb.	1.70	2.55
Menthol	lb.	3.50	3.60
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	2.10	2.75
Paracresol	lb.	4.50	6.00
Salicylate, U. S. P.	lb.	.40	.45
Musk Ambrette	lb.	4.20	5.00
Ketone	lb.	4.35	5.25
Xylene	lb.	1.25	2.00
Phenylacetaldehyde	lb.	4.80	8.00
Phenylacetic Acid, 1 lb.. bot.	lb.	2.50	3.25
Phenylethyl Alcohol, 1 lb. bot.	lb.	4.00	4.50
Rhodinol	lb.	5.75	8.00
Safrol	lb.	.47	.50
Terpineol, C. P., 1,000 lb. drs.	lb.	.23	.25
Cans	lb.	.27	.30
Terpinyl Acetate, 25 lb. cans	lb.	.80	1.00
Thymol, U. S. P.	lb.	1.70	1.95
Vanillin, U. S. P.	lb	3.75	4.00
Yara Yara	lb.	1.30	2.00

Insecticide Materials

Insect Powder, bbls.	lb.	.18	.20
Concentrated Extract			
5 to 1	gal.	1.30	1.40
20 to 1	gal.	4.75	5.25
30 to 1	gal.	6.90	7.50
Derris, powder—4%	lb.	.33	.38
Derris, powder—5%	lb.	.39	.44
Cube, powder—4%	lb.	.23	.28
Cube, powder—5%	lb.	.28	.33

Gums

Arabic, Amb. Sts.	lb.	.13	.13½
White, powdered	lb.	.16½	.17
Karaya, powdered No. 1	lb.	.12	.13
Tragacanth, Aleppo, No. 1	lb.	2.75	3.00
Flake	lb.	.50	1.00

Waxes

Bees, white	lb.	.40	.42
African, bgs.	lb.	.28	.28½
Refined, yel.	lb.	.35	.39
Candelilla, bgs.	lb.	.14	.14½
Carnauba, No. 1	lb.	.47	.48
No. 2, N. C.	lb.	.40	.41
No. 3, chalky	lb.	.38	.39
Ceresin, yellow	lb.	.08½	.11
Paraffin ref. 125-130	lb.	.0455	04¾

PRODUCTION SECTION

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, *Oil & Fat Industries*.

Potash Soaps

A PATENTED soft soap for silk washing is made from 100 parts of oleic acid dissolved in 40 parts of industrial alcohol and saponified in the cold with 40 parts of caustic potash of 50° Tw. (29° Be.). When used for soaping dyed silk, the silk is passed through a soap liquor containing 2 pounds per 50 gallons of water at about 150°F. A green olive oil soap containing 62-64 per cent of fatty acid is also suitable for this purpose. It should be on the fatty rather than the alkaline side.

For treating cotton a semi-transparent potash soap is much used. Suitable fats include coconut oil, palm kernel oil, linseed oil, soybean oil, cotton seed oil, olein, peanut oil, lard and mutton grease. The soap is made by boiling in open pans. The glycerine is not separated. A smooth yellow potassium soap of vaseline-like consistency is made from linseed oil, soybean oil and rosin, sometimes with tallow added. Potash lye of 50°Be. was slightly warmed in the pan. Linseed oil was then introduced slowly and boiling continued for several hours with the addition of water. Other oils were introduced after the linseed oil was saponified. Saponification is finished in the course of 1 day. Three parts of caustic potash and 1 part of caustic soda are used in the summer, but in winter no caustic soda is included in the alkali. Soda ash can be used with the caustic potash in summer instead of caustic soda. When saponification is complete the pan shows a layer of scum, under which the black transparent soap paste is found. The scum disappears for the most part on continued boiling. It may be necessary to incorporate 10 per cent of tallow in the summer in order to get the proper consistency.

Tests for the finished soap are as follows: 1. When cooled on a glass plate, the soap should remain transparent. 2. The finished soap should be gummy and sticky when pressed between the fingers. 3. The soap should not be short and slippery. If so, correct by adding oil mixed with weak lye, if necessary, until the soap remains clear on cooling.

Besides the above practical tests, the following laboratory test may be made for complete saponification. Dissolve 10 grams of soap in 200 cc. of water. Add 10 cc. of sulfuric acid and boil until a clear layer of oil is formed. Decant off the oil and transfer 3 cc. to a clean test tube. Add 15 cc. of 95 per cent alcohol and 18 cc. of ammonium hydroxide. On warming, a clear solution results if saponification is complete.

Formulas for soybean oil liquid soaps are as follows:

	parts by weight
1. Soybean oil	40
Denatured alcohol	10
Caustic potash	8
Water, to make	100
	parts by weight
2. Water	32
Soybean oil	10
Camphor	5
Caustic potash	2
Oil of rosemary	1
Water, to make	100
	parts by weight
3. Soybean oil	80
Ammonium hydroxide	20
Soap powder	0.1

A. N. Ghose. *Indian Soap J.* **3**, 296-301 (1937).

Washing Compound

Washing agents are obtained by introducing into aliphatic alcohols di- or trialkyleneglycol radicals derived from glycols having at most 4 carbon atoms, and subjecting the resulting hydroxy ethers, when necessary to secure solubility, to the action of sulfonating or phosphating agents. I. G. Farbenindustrie A.-G. British Patent No. 463,624.

Washing Agent

A reviving and washing agent is prepared by treating high molecular-weight alcohols with aldehyde-monosulfonic acids in the presence of inorganic water-abstracting agents and an organic solvent at temperatures not exceeding 40° C. e.g., cetyl alcohol is dissolved in benzene and phosphorus pentoxide is added. Benzaldehyde monosulfonic acid is added at 30° to give a water-soluble product. Böhme Fettchemic-G. m.b. H. German Patent No. 642,829.

Sulfonated Fatty Alcohols

Concentrated preparations of sulfonates of higher saturated or unsaturated fatty alcohols are obtained by treating higher fatty alcohols with sulfonating agents and then treating the products with concentrated bases such as 50 per cent caustic soda solution., e.g., technical oleyl alcohol is sulfonated and treated with 50 per cent caustic solution until alkaline. Chemische Fabrik Grunau Landshoff & Meyer A.-G. German Patent No. 644,686.

Cellulose Filled Soap

By the use of a methyl cellulose product sold under the name of Tylose, the fatty acid content of soap can be reduced to 30-32 per cent. The filling agent is prepared the day before use by adding 40 parts by weight of caustic soda, 38-39° Be. to 200 parts of boiling water. Next 40 parts of Tylose are added, stirred, allowed to swell for a half hour, and then diluted to 1000 parts by weight by stirring in cold water. This mixture is allowed to stand overnight and crutched the next day. It may be used in soap according to the following formulas:

1. White Soft Soap

	Kg.
Mixed fatty acids	1000
Caustic potash, 50° Be	370
Soda ash	42
Caustic soda	24
Potassium chloride solution, 20° Be	50
Potassium carbonate solution, 36° Be	25
Tylose solution	500
Caustic soda, 38-39° Be	25

The usual mixed fatty acids, the caustic potash, soda ash and caustic soda in the first part of the formula are boiled together, cooled, treated with bleaching agent and brought to a fatty acid content of about 40 per cent. The ingredients in the second part of the formula are then added to give 3100 kg. of soap of 32-33 per cent fatty acid content.

2. Smooth Transparent Soap

Mixed fatty acids 1000 kg.

These are boiled as usual with caustic potash, cooled, treated with bleaching agent, and reduced to a 40 per cent fatty acid content. Next is added:

	Kg.
Potassium chloride solution, 20° Be	54
Potash solution, 36° Be	53
Diluted waterglass (1:1)	100
Tylose solution	600
Caustic potash, 38-39° Be	53

The waterglass is added in small portions. About 3360 kg. of soap containing 30 per cent of fatty acids is produced. *Seifensieder-Ztg.* **64,** 588-9 (1937).

Shaving Cream

Soap creams are formed by adding polyvinyl alcohol or its water-soluble derivatives to soap as a gelatinizing agent. Other materials may or may not be added. As an example, stearic acid, coconut oil, olive oil and glycerine are saponified with caustic potash. A highly polymerized polyvinyl alcohol is added to the resulting soap to form a shaving cream. Chemische Forschungsgesellschaft m.b.H. German Patent No. 643,668; through Chem. Abs.

Coconut Oil Crystallization

Coconut oil in a thin film solidifies in needle-like bodies which radiate from a non-fatty central nucleus. This is probably some crystalloid inherent in the oil itself. It is not known whether these substances simply act as nuclei during crystallization or whether they play some other part in solidification and attract the fat crystals toward them. G. N. Bhattacharyya. *Indian Soap J.* **3,** 302 (1937).

Esters of Acid Amides

Sulfuric esters of carboxylic acid amides are prepared by treating carboxylic acids of the cycloaliphatic or aromatic series with ammonia or with amines to form high molecular acid amides, and sulfonating the product, e.g., cholic acid is dissolved in ethylaniline and heated to give the ethylanilide of the acid. This is then treated with chlorosulfonic acid and the product neutralized with caustic soda. The products are used as wetting or foam-producing agents. I. G. Farbenindustrie A.-G. German Patent No. 642,885.

White Toilet Soap

Rigorous cleanliness is necessary in the manufacture of settled white toilet soaps. The pan charge should be high in water content during boiling so that the soap is adequately washed during the brine changes. Good working practice will produce a ton of lye per ton of soap. Before the final "fitting", it is a good plan to give the soap a preliminary fit so that a thin nigre is dropped, which should be pumped off. This will cause a marked improvement in the finished product. The final fit should be such that yield is sacrificed to obtaining a fine-textured soap.

Quite frequently difficulties arise in the milling and plodding of the soap base from continuous driers. A transparency is induced which results in an off-colored product. This is because sudden cooling interferes with the normal rate of crystallization. Up to 0.5 per cent of zinc or titanium oxide is common in white toilet soaps to destroy the transparency. It has been found, however, that soaps rich in high-melting fatty acids yielded a product that milled well, behaved perfectly in the plodder and produced a dense white cake. It was established that the ideal fatty base had a titre of 35°C.

Standardization of the moisture content at 10-12 per cent will avoid the necessity of repeated milling that might otherwise be necessary to secure a good plodding base. Also free alkali ought to be standardized at from 0.10 to 0.15 per cent. This is converted to carbonate during drying and milling. Monel metal or tin coated or nickel plated dies and molds should be used. G. T. Caley, *Manufacturing Perfumer* **2,** 154-5 (1937).

Fluorescence of Olive Oils

All good fixed oils show a yellow fluorescence in ultraviolet light. The fluorescence disappears almost completely on treatment with carboraffin. Refined oils fluoresce a sky blue, even after treatment with carboraffin. Refined "sansa" oils fluoresce deep blue by reflected light, yellow-green by transmitted, even after treatment with carboraffin. Fixed

oils from damaged fruit behave like refined oils. Fixed oils from olives stored only 2-3 days fluoresce a blue-violet, but do so no longer after treatment with carboraffin. The blue fluorescence of the refined products is masked by the addition of chlorophyll. Certain oils, guaranteed pure, show a blue fluorescence either at once or after long storage. Ciusa Walter. Olii minerali, olii e grassi, colori e vernici **15,** 149-56; through Chem. Zentr. and Chem. Abs.

◆

Laundering Woolens

Three blanket fabrics were used in laundry tests. Fabric 1 was made of 1 part fine and 1 part ½-blood wool; fabric 2 of 2 parts ⅜-blood and 1 part ¼-blood wool; fabric 3 of 1 part ⅜-blood and 2 parts reworked wool. In general both repeated laundering, and service plus laundering, caused a decrease in strength-index, in air permeability, sulfur and nitrogen contents and resistance to bacterial attack. At the same time there occurred an increase in weight per square yard, in thickness, in thread count, moisture content, ash content, methylene blue absorption, and scale breakage.

Laundering in a cotton rib-washer was more damaging than laundering in a Y-pocket machine; the use of a Y-pocket machine resulted in greater damage than that of a squeeze-roll or rope-type washer. Shrinkage was dependent on the fineness of the wool as well as on laundry procedure. Fabric 3 was initially and throughout the study more deteriorated than fabrics 1 and 2. Ruth E. Elmquist and Margaret B. Hays. *Am. Dyestuff Reporter* **26,** 469-76 (1937).

◆

Hydrogenated Sunflower Oil

A comparison of the hydrogenation of oxidized and of polymerized sunflower oil show that the latter required sufficiently less hydrogen to warrant the use of polymerization. The oil obtained was dark and suitable for technical purposes. A. I. Kal'fe. Ukrain. Khem. Zhur. **11,** 483-91; through Chem. Abs.

Sodium Perborate Bleach

Sodium perborate is used as a domestic bleach and by power laundries to an increasing extent. Its advantages over sodium hypochlorite are: Less destructive action on fabric, its suitability for the removal of stains from wool and silk, and its safe use on many colored fabrics. It is often assumed that the conditions for the employment of sodium perborate are parallel with those under which hydrogen peroxide is used, since there is very little in the literature on sodium perborate bleaching. Extensive research has recently been conducted with a view to determining some of the factors of importance in the application of sodium perborate as a bleaching agent for laundry work. This has led to the following conclusions:

1. Aqueous solutions of sodium perborate are stable in acid solution and unstable in alkaline solution. In alkaline solution the degree of stability depends on the pH of the solution and the temperature. The higher the pH and the higher the temperature, the more rapid is the decomposition.

2. The addition of soap to aqueous solutions of sodium perborate has a very marked stabilizing effect. In the presence of soap, sodium perborate undergoes no decomposition at pH 6, 7 and 8, and very little decomposition at pH 9, at 60°C. At pH 10 and over, decomposition is considerable.

3. Sodium perborate can produce serious chemical damage to cotton fabric when used under unfavorable conditions. The damage is a function of concentration and temperature. No appreciable chemical damage to the fabric occurs with solutions of sodium perborate in the absence of soap even at the boil, unless the concentration of perborate is over 100 grains of $NaBO_3.4H_2O$' per gallon. (*Ed. Note*—Grain here is assumed to be weight avoirdupois, in which case 1 grain equals 0.0648 mg. and 7000 grains equal 1 pound.)

4. Soap increases the effectiveness of perborate bleach, so that less bleach should be used in the presence of soap in order to avoid damage to fabric. At the boil very good bleaching was produced with a concentration of 11 grains per gallon of perborate and soap equivalent to 0.3 per cent of fatty acids. Little improvement was obtained by increasing the perborate concentration to 43 grains per gallon, although the chemical damage after ten treatments of 15 minutes each increased from almost nil to 14 per cent loss in tensile strength with the change in concentration.

5. The bleaching process is best carried out in a hot wash liquor or at the boil, when full advantage can be taken of the beneficial action of the soap present. Under no circumstances should the bleaching of cotton fabric be carried out in a liquor free or almost free from soap. It may be taken as a general rule that according to the degree of staining and the distribution of the staining, temperatures between 60 and 100°C. may be used, but the higher the temperature, the lower should be the concentration of perborate. For uniformly stained cotton fabric, bleaching is best conducted at the boil with low concentration of perborate, but for light locally stained fabric, the temperature may well be kept to 60°C. and the concentration of perborate increased to 108 grains per gallon.

6. Some modifications may be necessary in translating this work which was done under laboratory conditions, to large-scale laundry work. Arthur J. Jinkings and Leo McGrachan. *J. Soc. Chem. Ind.* **56,** 238-44T (1937).

◆

A cleaning liquid is composed of 18-30 parts by weight of tall oil, 40-80 parts of methylene chloride, 15-25 parts of alcohol, 2-4 of paraffin and 15-20 parts of hydroquinone. Alfred Abraham and Marcel L. A. Philippon. French Patent No. 807,-065.

Products and Processes

Germicidal Liquid Soap

A liquid germicidal soap suitable for use by physicians is made as follows: Dissolve 20-25 parts of soft soap in 30 parts of alcohol. Add 10-20 parts of spirit of camphor and 3 parts of ammonia in which 2 parts of thymol or chloramine are dissolved. A pine needle oil perfume can also be added. *Seifensieder-Ztg.* **64,** 533 (1937).

Carpet Cleaners

Soapless detergents are most suitable for use as carpet cleaners because most woolen rugs and carpets are acid-dyed and alkali cleaning, particularly with soda ash, is apt to be harmful to the dyes. Alkali is also harmful to wool if left in contact with it, as is apt to be the case with household rug cleaners. A patented product using Igepon T contains the following:

	part
Industrial alcohol	1
5 per cent acetic acid	3
Igepon T powder	0.08

Another patent combines sodium hexametaphosphate with an ethanolamine soap or the sodium salt of a sulfated fatty alcohol. The suggestion is made that anything suitable for use as a rug cleaner can also be recommended for cleaning felt hats. *Manufacturing Perfumer* **2,** 162 (1937).

Baby Soaps

Baby soaps are high quality milled soaps, the base being well finished from a good grade of tallow, lard, olive, castor and palm oils, to give a soap of maximum mildness. It may be superfatted with lanolin, petroleum jelly or a similar agent, and faintly perfumed with a delicate buttermilk or similar odor. Such soaps should contain no added coloring matter, nor should they contain any appreciable quantity of coconut or palm kernel oils in the fat base. Excessive lathering is not essential. If soap chips are purchased ready-made, the grade used for first-class toilet soaps should always be specified. K. N. Richardson. *Soap, Perfumery & Cosmetics,* **10,** 661 (1937).

Liquid Soap from Fatty Acids

A 30 per cent liquid soap suitable for use as a shampoo is based on coconut oil fatty acids because of the ready solubility and good lathering power of coconut oil soap. By itself this might have an irritating action on the skin so that it is necessary to add castor oil fatty acids and a thin low-titre distilled olein to counteract this. The fatty acid mixture is warmed to 80-90°C. and run into warm caustic potash solution slowly with stirring so that clumps of soap will not form. A formula is as follows: 20 parts of coconut oil fatty acids, 6 parts of distilled olein, titre 8-10°C., 4 parts of castor oil fatty acids, 17 parts of caustic potash, 50°Be., and 62.5 parts of water in which ½ part of potassium chloride is dissolved. *Seifensieder-Ztg.* **64,** 553 (1937).

Sulfonated Oil Shampoos

Clear, sparkling shampoo liquids can be made from sulfonated oils which are neutral or very slightly on the acid side. While any sulfonated oil of the proper consistency may be used alone, the disadvantages of the various oils must be overcome in a practical combination. The two most generally used oils are sulfonated castor and olive oils. Either of these can be used alone, but unfortunately, castor oil is too sticky, and olive oil is too light, besides being more readily susceptible to rancidity. It is necessary therefore, to combine both in a formula that will have sufficient body without stickiness. Sulfonated oils are such excellent cleaners that they will remove every particle of foreign matter and natural oil from the hair, leaving it looking very dull. Hence it is desirable to add an ingredient which will remain deposited on the hair and impart the necessary luster. This function is admirably fulfilled by light white mineral oil.

These three necessary ingredients must be combined in a stable form. But since mineral oil cannot be sulfonated, a mixture of the three oils cannot be made stable without a binding agent. Such an emulsifying agent must not make the liquid cloudy or alkaline. Ethylene glycol is suggested to fulfill this function, as in the following:

	per cent
Sulfonated castor oil (75%)	63.0
Sulfonated olive oil (75%)	20.0
White mineral oil, light	5.0
Distilled water	10.0
Ethylene glycol	1.5
Perfume	0.5

This formula is quite concentrated and can be diluted with 40 or 50 per cent more of distilled water. Addition of hard water will cause the product to become cloudy. *Manufacturing Perfumer* **2,** 168 (1937).

Hydrogenation of Oils

Sunflower-seed oil was hydrogenated in the presence of a reduced nickel formate catalyst with propyl alcohol as a hydrogen donor, at 260°C. for 15 minutes. The product contained saturated compounds 12.5-12.8 per cent, oleic acid 50.8-54.5, isoöleic acid 33.1-27.4 and linoleic acid 3.6-5.3 per cent. V. A. Rush, I. L. Dvinyaninkova and E. I. Lyubarskii. *J. Applied Chem. (U.S.S.R.)* **10,** 702-8 (1937); through Chem. Abs.

Alloy for Hot Fatty Acids

The use of nickel can be avoided in preparing a steel highly resistant to hot fatty acids. Comparative laboratory tests and actual installations show that by alloying the iron with 17 per cent of chromium and 1.5 per cent of molybdenum, a steel is obtained which is resistant to fatty acids in both the liquid and vapor phases. E. Bairlecken. *Fette und Seifen* **44,** 228-9 (1937).

Fabric Cleaners

Fabric cleaners can be made economically from high-boiling naphtha. To add detergent properties, it is advisable to mix the naphtha with a solution of dry-cleaner's soap. This may be done by mixing oleic and stearic acids with the desired proportion of naphtha and half saponifying. A mixture of this description should contain about 10 per cent of water. Triethanolamine is recommended as the saponifying alkali, although caustic soda, caustic potash or ammonia may be used. The addition of the soap greatly assists the penetration of the solvent.

The more expensive cleaners are made from the chlorinated solvents which are noninflammable, such as carbon tetrachloride or trichloroethylene. Both of these solvents can be mixed with a soap solution as described for naphtha, the soap acting as a detergent. An equal volume of ethylene dichloride may be added to the other solvent. Ethylene dichloride acts as a solvent for fats and grease, and also for gums and resins. Addition of soap tends to give the product a cloudy appearance, which although it will increase detergency, seems to meet with small popular favor. For those who wish to market a transparent fluid, the soap is omitted.

Inflammable solvents such as benzene, xylene, toluene, etc., may be mixed with certain precautions, with noninflammable chlorinated solvents to give efficient and transparent cleansing fluids. Under conditions where evaporation may occur, such mixtures are liable to change, with the lower boiling solvent disappearing first, making the fluid increasingly inflammable. The boiling point of benzene is very close to that of carbon tetrachloride, so that the two make an ideal mixture from the point of view of remaining unchanged. The following shows the relation of the boiling points:

Carbon tetrachloride.....	170°F.
Benzene	176°F.
Toluene	231°F.

This shows that the proportion of carbon tetrachloride should be sufficiently great to ensure that a mixture of it and a high-boiling liquid will remain noninflammable under any conditions. C. A. B. Ogilvie. *Manufacturing Chemist* **8,** 223-4 (1937).

Hydrogenation Catalysts

Various metallic catalysts with kieselguhr as a carrier were investigated. With soybean oil, the proportion of 70 parts of copper to 30 of nickel gave the best results. Catalysts which were not pretreated with hydrogen were the best for this oil. With sardine and herring oils pretreatment with hydrogen was beneficial. Manganese, cobalt and cupper carbonate catalysts were less active than those containing nickel. Ryosei Koyama. *J. Soc. Chem. Ind., Japan* **40,** Suppl. binding 25-9 (1937).

Marseilles Soap

Genuine Marseilles soap is made from olive oil and caustic soda only, and should be a well-settled soap, white and free from odor. Olive oil undoubtedly gives soaps many desirable properties, so that it does not seem mere prejudice that makes many people prefer genuine Marseilles soap. *Industrial Chemist* **13,** 330 (1937).

Shaving Soap Powder

A shaving soap powder can be made simply from potassium stearate. This foams well in hot water but the foaming property can be improved by adding 10-20 per cent of a completely saponified sodium coconut-oil soap. The latter is hard and brittle so that it can be easily reduced to powder form and mixed with the potassium stearate powder. *Seifensieder-Ztg.* **64,** 594 (1937).

Cleansing Agent

A jelly of vegetable origin produced by means of a polyol such as pectin or glycerine, is incorporated with such compounds as trisodium phosphate and ammonium stearate. L. de Saint-Rat. Belgian Patent No. 409,974.

Bleaching Detergent

A bleaching and cleansing agent contains a per compound capable of liberating oxygen when in aqueous solution, a water-soluble pyrophosphate, magnesium silicate, and a substance adapted to increase the alkalinity of an aqueous solution of the product. Henkel & Cie. G.m.b.H. Canadian Patent No. 367,-896.

Degreasing Composition

The composition is composed of a gel formed from pectin, water and glycerine to which an alkaline salt and soap may be added, such as trisodium phosphate and ammonium stearate, and fillers such as sawdust and pumice stone. Leopold Katz. French Patent No. 808,552.

Fatty Acids from Wood

A definite mixture of carbon dioxide and carbon monoxide with a small portion of oxygen, when passed into a solution of cellulose under a high pressure and temperature in the presence of a catalyst, yielded a greasy mass. This when saponified yielded substances resembling soap in properties and in behavior. Jar. Hoijka. Ca. Mydear a Vonavkar **14,** 101; through Chem. Abs.

Caballine Oil

Calline fat is melted, allowed to stand, and centrifuged at a minimum temperature of 28°C. A purified caballine oil setting at about 11°C. is obtained, as well as a viscous product resembling petroleum jelly in appearance and composed principally of stearin and olein, melting at about 25°C. Andre Bourdin. French Patent No. 808,217.

New Vegetable Oil

The oil from the seed kernels of corn salad (*Valerianella olitorea*, Poll.) is similar in composition to poppy, safflower, sunflower and soybean oil and therefore might be used for the same purposes to which these oils are put. A. Steger and J. van Loon. *J. Soc. Chem. Ind.* **56,** 298-300T (1937).

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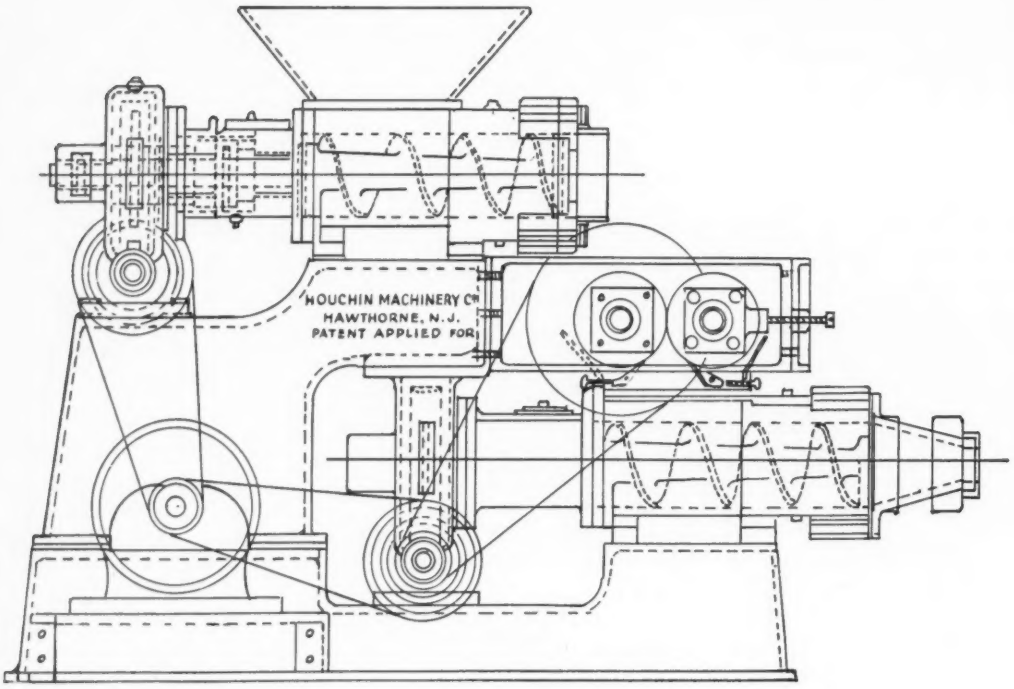

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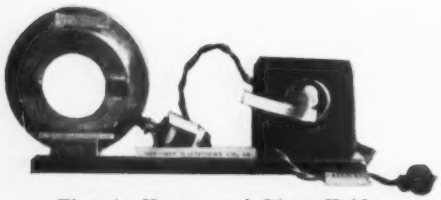

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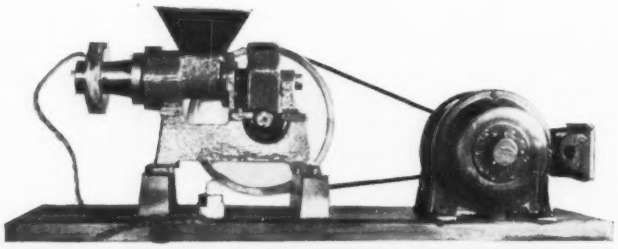

Laboratory Plodder, complete with Motor, Electric Heater, and Plate Holder.

Acid Values of Oils

Accurate results for the acid values of oils may be obtained by potentiometric titration using the glass electrode. The method is superior to the usual titration to an indicator end-point, since it eliminates errors due to the nature of the acid, the possible dark color of the oil itself, and the sensitiveness to color change of the experimenter's eye. The only drawback to the method is that it is slow, which prevents it from being considered as a routine method. It is of definite value for arbitration purposes. A. C. Rolfe and G. P. Alcock. *J. Soc. Chem. Ind.* **56,** 294-8T (1937).

Fatty Acid Determinations

It is suggested that instead of the usual ether-alcohol mixture for the solution of fat in the determination of acidity, a mixture of equal parts of benzine and alcohol be used. The latter mixture is cheaper and its use yields the same values for the acidity. A. B. Burshtein. Voprosy Pitaniya **3,** No. 5, 16-19; through Chem. Zentr. and Chem. Abs.

Reactivation of Carbon

The method of reactivating carbon used in refining oils and fats, by boiling it with alcohol and methyl ethyl ketone plus benzene failed to give satisfactory results. The activity was restored to 85-100 per cent by heating the carbon in a porcelain retort in the absence of air at 800-950°C. for 3 hours. V. Ruff. *Masloboino Zhirovoe Delo* **12,** 552-5; through Chem. Abs.

Increased Acidity in Oils

It is shown that the acidity of oils neutralized with caustic soda or soda ash increases after washing with water. This increased acidity is caused by the hydrolysis of the soap formed in the process of neutralization. The fatty acids formed by the hydrolysis do not form acid soap with the neutral soap, but are dissolved in the oil. Since the degree of hydrolysis depends on the nature of the acids forming the soaps, the increase of acidity varies for different oils and depends on the composition of the oil. The acidity increases with the increased content of soap in the neutralized soap solution after settling and with the greater molecular weight of fatty acids in the soap. I. Petryaev. *Masloboino Zhirovoe Delo* **13,** 26-9 (1937); through Chem. Abs.

Color-Flame Candles

Wickless candles which burn with a colored flame are made by molding a mixture containing paraformaldehyde, paraffin wax or like hydrocarbon, and a flame-coloring metallic salt such as lithium chloride or cuprous chloride. The molded products are enclosed in a sheath of cellulose foil, which may be coated externally with paraffin wax. Gebr. Heitmann. German Patent No. 646,129.

Chlorinated Solvent Soaps

Chlorinated hydrocarbons such as carbon tetrachloride can be incorporated in soap with the aid of derivatives of glycol which are soluble in water e. g. ethylene, propylene or butylene glycol. The warm sodium or potassium soap is first mixed with the glycol product, and then the chlorinated hydrocarbon is added warm, mixed well and the mixture allowed to solidify.

		parts
1.	Black soap	250
	Butylene glycol	40
	Carbon tetrachloride	200

		parts
2.	Hard soap	50
	Soft soap	200
	Methylene glycol	40
	Carbon tetrachloride	200

On dilution in water, the carbon tetrachloride does not separate from the soap. The second example is of a viscous, rather gelatinous soap. The presence of the carbon tetrachloride aids greatly in dissolving greasy matter and is particularly applicable in some phases of the textile industry. *Les Matieres Grasses* **29,** 200-201 (1937).

Sperm Oil Sulfates

Sulfates of sperm oil neutralized with alkali or ammonia were found to be stable to acids, alkalies and salts, and to possess suitable lathering power and surface tension-lowering against petroleum. However, they were inferior in this respect to the neutralized sulfates of the higher aliphatic alcohols. Seiichi Ueno. *J. Soc. Chem. Ind., Japan* **40,** Suppl. binding 24 (1937).

Fat Splitting Equilibrium

Refined sunflower-seed oil was saponified in a Monel autoclave at temperatures of 140-205°C. Fat to water ratios of 2:1, 3:1 and 6:1 were used. Raising the temperature greatly increased the rate of saponification; additions of zinc oxide were even more effective in this respect. At equilibrium conditions, the fat to water ratio was the sole factor determining the percentage of fat saponified, which ranged from 69.6 to 84.9 per cent for ratios of 6:1 and 2:1 respectively. H. P. Kaufmann and M. C. Keller. *Fette und Seifen* **44,** 42-7 (1937).

Soap Lathering Power

A soap which will give a maximum amount of lather in hot water may be made from 70 parts of coconut oil, 20 parts of tallow or bleached palm oil and 10 parts of castor oil, saponified at 30-5°C. (86-95°F.), with 52 parts by weight of caustic soda to each 100 parts by weight of fat mixture. This is suitable for toilet soap if superfatted with lanolin or other agent. *Seifensieder-Ztg.* **64,** 473 (1937).

Fat Hydrolysis

Water is passed in a continuous stream through a column of melted fat also in circulation, at a temperature sufficiently high and under sufficient pressure to liberate the fatty acid and glycerine. The glycerine set free is constantly washed by the flowing water and is evacuated as glycerine-containing water while the fat is evacuated at the other end of the column. Henkel & Cie. G.m.b.H. French Patent No. 808,069.

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No. 2,088,674, Cleansing of Textile Products, Patented August 3, 1937 by William Whitehead, Cumberland, Md., assignor to Celanese Corporation of America. Method of washing textile materials containing cellulose esters, which comprises applying thereto an acid which forms a detergent soap with a strong base and thereafter subjecting the materials to the action of an aqueous bath containing such base in quantity sufficient to neutralize a part only of the acid on the materials.

No. 2,089,305, Liquid Soap, Patented August 10, 1937 by Kurt Stickdorn, Rosslau/Anhalt, Germany. A liquid soap having approximately 40 per cent fatty acid content and comprising as principal ingredients the potassium salts of a mixture of unsaturated fatty acids of the group having 12 to 18 carbon atoms in the molecule and the reaction products of adipic acid, normal primary aliphatic alcohol having 1 to 4 carbon atoms in the molecule and potassium hydroxide, the reaction product being of the order of 10 per cent of the weight of the potassium salts.

No. 2,089,766, Insecticide, Patented August 10, 1937 by William A. Simanton, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa. An improved insecticide comprising in stable admixture a petroleum fraction, a substance chosen from the class consisting of ethylene glycol monoethyl ether acetate and diethylene glycol monoethyl ether acetate, pyrethrins, and at least one of the active toxic ingredients of derris and cube.

No. 2,089,767, Insect Repellent, Patented August 10, 1937 by William A. Simanton, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa. A petroleum fraction containing between 5 and 15 per cent of a substance selected from the class consisting of diethylene glycol monobutyl ether and diethylene glycol monethyl ether acetate as an insect repellent.

No. 2,090,109, Stabilized Insecticide, Patented August 17, 1937 by Mayne R. Coe, Washington, D. C. A composition of matter, comprising an insecticide of plant origin subject to deterioration by ordinary light the individual particles of which insecticide are coated with and enclosed in a protective medium which excludes all light below 4900 Angstrom units of the spectrum.

No. 2,091,121, Dry Cleaning Emulsion, Patented August 24, 1937 by Samuel Lenher and Luther B. Arnold, Jr., Wilmington, Del., assignors to E. I. du Pont de Nemours & Company, Wilmington, Del. A water-in-oil emulsion comprising a hydrocarbon dry cleaning solvent having dissolved therein a long chain aliphatic alcohol and an oil-soluble salt of the sulfuric acid ester of oleyl alcohol which has been acetylated prior to sulfonation, the ester being substantially free from inorganic salts and containing no more than a small amount of water.

No. 2,091,704, Detergent Composition, Patented August 31, 1937 by Robert A. Duncan and Walter H. McAllister, Wyoming, Ohio, assignors to The Procter & Gamble Company, Cincinnati. A detergent composition suitable for use on the human skin comprising as the essential ingredient a glyceryl ammonium salt of a sulfuric acid ester of a compound selected from the group consisting of primary aliphatic alcohols, secondary aliphatic alcohols and unsaturated aliphatic hydrocarbons, which compounds contain from ten to eighteen carbon atoms in the molecule.

Changes in Oils

The development of rancidity in oils was studied by examining the physico-chemical changes of sunflower oil caused by the action of natural and actinic light, moisture and atmospheric oxygen. The samples examined were: (1) an oil of unknown source kept for 24 years over a water layer in a transparent and colorless glass flask plugged with cotton and exposed to daylight; filtered oil kept for 7 years; (2) as above but with a preliminary sterilization; and (3) in a hermetically sealed flask charged with the oil up to the cork stopper and protected from light by opaque coverings. No marked changes took place in sample 3. Oils 1 and 2 showed relatively the same degree of degradation. The oil was converted into a heavy mass with a considerable increase in refractive index, acetyl number, acidity coefficient, viscosity and density, and decrease in iodine number and saponification coefficient, except that sample 2 showed practically no change in the saponification coefficient. Exposure of oil samples to ultraviolet light and to daylight showed a gradual increase in density, refractive index and saponification coefficient. Acidity increased comparatively little, and the iodine number dropped toward the end of the experiments. The oil was bleached considerably. N. I. Kozin and F. M. Fridlyanskaya. *Masloboino Zhirovoe Delo* **12**, 529-33; through Chem. Abs.

Conjugated Oil Hydrogenation

A mixture of 150 parts of sunflower oil with 19 parts of ethyl alcohol in the presence of 0.4-2 per cent of aluminum-nickel, copper-nickel, and nickel was autoclaved at 240-360°C. and 28-41 atmospheres for 5-15 minutes. By this method the content of linoleic acid in the oil is reduced and that of oleic acid is increased. The filtered oil is similar to edible olive oil in composition and properties. The solid residue can be used as frying fat or in soap making. The best results were obtained with a copper-nickel catalyst at 260° for 5-15 minutes, depending on the amount of catalyst used. M. F. Belyakov and G. A. Ivanova. *Masloboino Zhirovoe Delo* **12**, 537-9; through Chem. Abs.

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391—Shampoo Tank

Clifton Chemical Co., New York, has just announced a new shampoo tank for barber shop and beauty parlor use. The tank is said to eliminate waste of shampoo, and is fitted with a nozzle which can be adjusted to cut down the flow of soap to a trickle if desired. One filling of the tank, one and a half gallons, lasts several days. The tank is fitted with a clock dial to tell how much soap is left. It is easily moved from one location to another. Copies of the folder are available.

Publications

392—Xmas Packaging

The Cellophane Division of E. I. Du Pont de Nemours & Co., Wilmington, Del., has just issued a special booklet on the packaging of gift items for the Christmas trade. The booklet is based on a study of Christmas gift buying habits and emphasizes the necessity of special packaging for the holiday trade. A series of cellophane wrapped gift packages is illustrated. Copies of the booklet are available.

390—Pipe Repair

M. B. Skinner Co., South Bend, Ind., has just issued a new "Pipe Repair Handbook" giving advice on how to repair pipe leaks without the necessity of shut-offs. It discusses all the various kinds of leaks in pipe lines,—holes, splits, pitted or corroded sections; and joints of various kinds such as threaded joints, bell and spigot joints, welded joints, collars, etc. It is sent without cost to men responsible for pipe maintenance.

393—Price List

Schimmel & Co., New York perfuming material house, have just issued their fall catalog and price list. Copies are available.

386—Absorption Base

Pfaltz & Bauer, Inc., New York, have just issued a new booklet describing characteristics and uses of "Falba" oxycholesterin absorption base. A number of formulas for toilet preparations based on this material are included. Copies will be mailed on request.

387—Price List

Dodge & Olcott Co., New York, has just issued a new price list and catalog with quotations as of August, 1937. Copies available.

388—Issue Folder

General Drug Co., New York, has recently sent out a direct mail piece describing "Iso-Jasmone". Samples of the new product are offered.

Hydrolysis of Soap

Soap solutions containing 0.1 per cent of various pure fatty acids or certain combinations of fatty acids were prepared by exactly neutralizing a weighed amount of fatty acid with the calculated amount of caustic soda. The solutions were then heated briefly on a boiling water bath, kept for 48 hours at 20-22°C. and filtered. After the pH of the filtrate was determined, it was acidified with hydrochloric acid and the liberated fatty acid and sodium chloride determined gravimetrically.

The degree of hydrolysis of the soaps increased on passing from the lower to the higher saturated acids, e.g., sodium laurate 4.8, sodium myristate 44.8 and sodium stearate 92.1 per cent. The hydrolysis of sodium oleate (36.6 per cent) was much greater than that of soaps from other unsaturated acids such as sodium ricinoleate 0.1, sodium linoleate 1.7, sodium stearolate 0.3 per cent. On addition of either unsaturated or a lower saturated fatty acid to the stearic acid used in making the soap solution, increased amounts of stearic and decreased amounts of other fatty acid were found in the filtered solution. B. Lustig and F. Schmerda. *Fette und Seifen* **44,** 51-4 (1937).

Glycerine for Boiler Scale

Glycerine is recommended to prevent or retard the formation of scale in boilers. Its usefulness for this purpose lies in its solvent properties. Boiler scale is primarily caused by the formation of insoluble salts in the boiler water. Glycerine in the water is claimed to cause the formation of soluble compounds in place of these insoluble salts. The lime concentrations, in the course of time, will become too large to be assimilated in this way by the formation of soluble compounds. But when this happens, a viscous, gelatine-like substance is precipitated which does not adhere to the boiler walls and also is not carried through the piping by the action of steam. No complicated apparatus is involved in this use of glycerine to prevent boiler scale. *Food Industries* **9,** 202 (1937).

Differences in Soybean Oil

It has been found that the North Carolina and Virginia clarified crude expeller soybean oil tends to become turbid and to separate out a sizeable precipitate composed chiefly of phosphatides, a phenomenon which does not always occur in the oil of the beans grown in the Middle West. This may be due to a lower stability of certain protein-phosphatide combinations in the soybeans grown in the Eastern Region, at temperatures generated during the expeller procedure. A. A. Horvath. *Chemistry and Industry* **56,** 736 (1937).

Linseed Soap Specification

(*From Page 35*)

I. Notes

I-1. *Basis of Purchase.*—Soft soap (potash-linseed-oil) should be purchased by net weight.

I-2. Bidder should state size and weight of his unit.

I-3. The odor of linseed oil soap is objectionable to some people. Some people claim that it smells of fish. This odor may not develop for some time. The odor does not impair the detergent properties of the soap. (See pars. D-1a and F-1a.).

I-4. Federal Specification P-S-536, for "Soap and Soap-Products; General Specifications (Methods for Sampling and Testing)", can be procured at 5 cents per copy from the Superintendent of Documents (see par. I-7).

I-5. It is believed that this specification adequately describes the characteristics necessary to secure the desired material. Bid samples should be specifically asked for in the invitation for bids, and the particular purpose to be served by the bid samples should be definitely stated, the specification to apply in all other respects. (See par. D-1a.).

I-6. An Index of Federal Specifications may be purchased as noted in the paragraph next below, price 10 cents.

I-7. Copies of this specification and of P-S-536 may be obtained upon application, accompanied by money order or coupon, or cash, to Superintendent of Documents, Government Printing Office, Washington, D. C.; price 5 cents each.

Laundry Soap

(*From Page 29*)

recommends a kettle charge of the folowing type:

	Parts		Hardness No.		
Tallow	45.5	x	327.6	=	14905.8
Coconut oil	15.5	x	333.2	=	5164.6
Rosin	4	x	316.4	=	1265.6
Linseed oil	3	x	70.5	=	211.5
Peanut oil	32	x	196.3	=	6281.6
	100				278.29

The hardness number, as will be seen, is kept near 278.5, with 15.5 per cent of coconut oil representing the condition for optimum detergency.

This type of grained soap has of course a much higher fatty acid content than fitted or cold-process soap. The finished soap usually has about 68 per cent fatty acids, rising to 75 per cent or more on storage. It is unsuitable for filling with silicate, without showing a marked deterioration in appearance and finish.

Expression of Cottonseed Oil

The cottonseed used for the experiment contained about 32 per cent of foil (by the ether method), and 8.2 per cent of moisture after delinting and removal of fat. Increasing the pressure from 2,000 to 4,000 pounds per square inch increases the yield of oil from 10 to 14 per cent by weight of seed. Increasing the temperature increases the oil yield on account of the decrease in viscosity of the oil. The yields increase from 13 per cent at 18°C. to 24 per cent at 125°C. The time of pressing is a comparatively unimportant factor, especially when hot pressing is used. The moisture content of the seed is an important factor which is unfortunately frequently neglected in oil mills. The optimum range seems to lie between 5 and 11 per cent of moisture. Below this range oil cannot be pressed out readily from the seed; above this range the product is often contaminated with water. Eugene C. Koo and Shiu-Ming Cheng. *Ind. Research (China)* **6,** 9-14 (1937); through *Chem. Abs.*

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Reg. U. S. Pat. Off.

1. Complete freedom from kerosene odor
2. Stability
3. Balanced fractionation
4. Correct evaporation rate
5. A flash point which meets all safety requirements
6. Controlled uniformity

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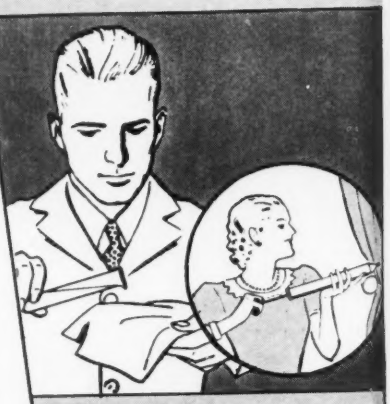

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WILL NOT STAIN

RICH AMBER COLOR

CHECK THESE SPECIFICATIONS

1. Pyrethrin Content: 2.5% by weight or 2 grams per 100 cc.

2. Stabilized: Retains its strength. Stabilized with antioxidant that has been proved effective by laboratory tests and commercial use over two years.

3. Killing Power: Guaranteed equal or better than any extract of equivalent pyrethrin content.

4. No "False Pyrethrins": Patented process removes materials which are not pyrethrins but which react like pyrethrins when assayed by the Seil method.

5. Odor: Made only with odorless base oil. Practically free from odor, except the natural floral aroma of pyrethrum. No Kerosene used in Pyrocide 20.

6. Color: A Rich Amber. Free from colloidal green coloring matter. The purest form of pyrethrins commercially available.

7. Clarity: Dilutes brilliantly clear with any base oil. Remains clear either in concentrated form or when diluted for use.

8. Economy: No increase in price for improved odor — improved color — improved stability—improved clarity. Requires ⅓ to ½ less perfume.

ONE GRADE OF

IDE 20

THE REGULAR PRICE!

DEODORIZED *and* CLARIFIED

...THE FINEST PYRETHRUM CONCENTRATE WE HAVE EVER MADE OR TESTED!

HERE is news, big news, for the entire household insecticide industry:

An improved grade of Pyrocide 20 . . . the finest pyrethrum concentrate we have ever made or tested . . . that sells at the regular price.

It has practically no odor except the natural floral aroma of pyrethrum . . . because it contains only odorless base oils. *No* kerosene.

It is more powerful and retains its high toxicity because its pyrethrin content is thoroughly stabilized with a tested antioxidant.

It has improved clarity because all resins and waxes have been removed by chilling to 0° C. It dilutes brilliantly clear with any base oil and remains clear in concentrated form or when diluted for use.

It is free from colloidal green coloring matter . . . so its clear amber color makes a rich looking, sparkling yellow spray when diluted for use — not weak or watery looking.

Yet you pay *no premium* to enjoy the benefits of this latest forward step in the insecticide industry because Pyrocide 20 now comes in only one grade, the best, and sells at the regular price.

It will pay you to learn more about Pyrocide 20 before you contract for the coming season's supply of pyrethrum concentrate. Learn how it will eliminate objectionable odor and color from your household insecticide. How it will make it the modern kind of spray consumers demand and dealers favor . . . at no increase in cost to you. Today — write for complete information.

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Next season's fly sprays [illegible] cides must be up-to-the-minute in odor. No half-[illegible] or make-shift scents will do. Better odor [illegible] long [illegible] toward putting your line out in front. [illegible] developed a wide variety of pleasant smelling, [illegible] prepared odors to offset the unpleasant ones [illegible] necessary ingredients. Send us a sample of [illegible] per-fumed fly spray, insecticide or disinfectant and [illegible] demonstrate how efficiently we can meet your special requirements. There is no obligation implied in this service.

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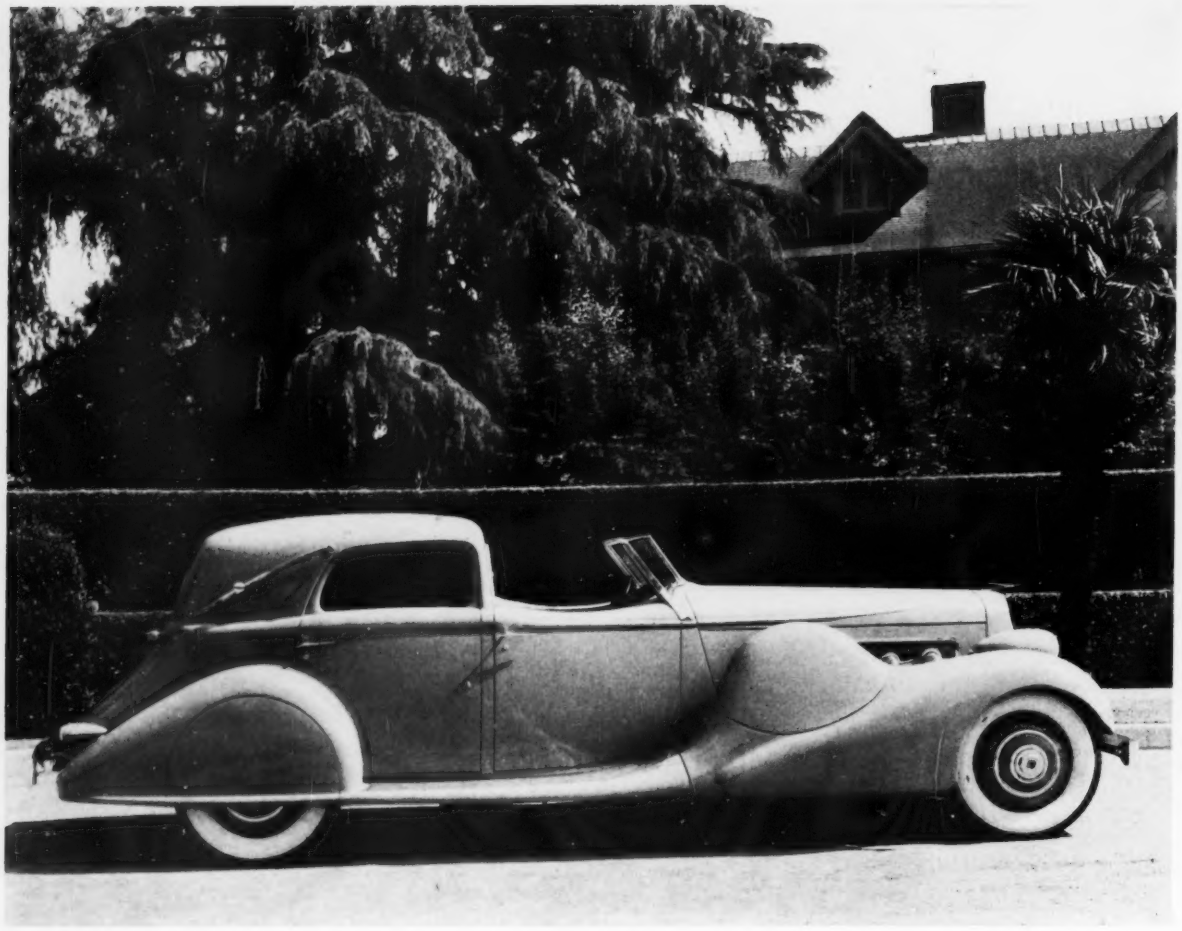
PYRETHROL 20 • PYRETHRUM POWDER • DERRIS POWDER
DERRIS EXTRACT • DERRIS RESINATE • ROTENONE CRYSTALS



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SO, too, with the best perfumes for liquid insecticides. Each spray base should be approached as an *individual* problem in itself, in order to prescribe the proper balanced perfume that suits its particular requirements.

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—A BETTER BASE FOR BETTER INSECTICIDES

AN INSECT, caught in a trap, would die.

But how weary a task to trap insects. How much faster and easier to wipe them out with an Atlantic Ultrasene-base insecticide! Atlantic Ultrasene is refined only for use as a carrier for insect killers. Unlike a kerosene-base insecticide, Ultrasene leaves no oily residue, no disagreeable kerosene odor. It evaporates readily. Small wonder men in charge of places where food is stored or prepared are choosing Ultrasene-base insecticides. Small wonder alert insecticide manufacturers are choosing Ultrasene for their spray-base.

It will pay you to know more about Atlantic Ultrasene . . . to *use* Atlantic Ultrasene. Our technical department will gladly furnish you with more information and liberal experimental samples. The Atlantic Refining Co., Specialty Sales Dept., 260 South Broad St., Philadelphia.

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FOR YOUR INSECTICIDE

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HAVING established a standard of efficiency for your product, you undoubtedly do not want its quality to deviate from that standard. You want each batch of insecticide to be as effective as the previous one. Also, you want your product to remain the same—with no deterioration—after it leaves your factory.

Insecticides based on Lethane 384 are uniform and stable in their effectiveness because—

Lethane 384 is uniform; each batch, carefully standardized chemically and biologically, is the same.

Lethane 384 is stable; as a concentrate or in a finished spray, it is unaffected over a number of years by temperature variations, light or air.

These characteristics of uniformity and stability thus assure consistency in speed of action, high kill, repellent and residual action, ovicidal properties and those other advantages common to insecticides based on Lethane 384.

For *uniformity*, *stability*, all-around *quality* and, what is more, for low *cost*, Lethane 384, of all insecticidal concentrates, most adequately fills your requirements.

Use Lethane 384 in household, warehouse, livestock and general exterminating sprays.

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Note the clarity of the water solution of Felton's Aquaromes, on the left, in comparison with an ordinary water soluble perfume oil.

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• THAT has not first been rigidly examined in our laboratories for chemical purity and germicidal efficiency. All our disinfectants are tested by the F.D.A. Method of Test and the coefficients guaranteed—for both your protection and our own.

• AND here's something that may be of interest—in reselling Baird's Certified disinfectants, you never have to offer excuses or apologies—these quality disinfectants are *made right* and *priced right*.

• NOW, let us ask *you* a question. When you buy a disinfectant—do you look for a perfect emulsion—a clean finished product—a guaranteed inert content—guaranteed phenol coefficient—uniformity—stability under all conditions—purity of raw materials? If you do this each time you buy, the disinfectant you want is certain to be a

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SANITARY PRODUCTS

A Section of SOAP

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

LOOKING around at the small retail packages of disinfectants on the shelves of dealers, we conclude that, with a few prominent exceptions, the packages in this day and age are some miles behind the parade. In fact, from what we have observed, the number of packages which almost screech cheapness at the prospective buyer, is large. But why should a product that is to be used to deodorize the garbage can, or mop up a stable, or to disinfect a human stool, be in a good-looking package? The answer is that hundreds of products of an equally utilitarian nature are well packaged. It is the order of the day. It enables the manufacturer to get a better price for his goods. It helps to give a product sales preference. Maybe in disinfectants, better packaging might help to lift them out of the class of cheap, cut-throat competition which is the bane of the small-package business today.

SLOWLY, but surely, the time is approaching when the intelligent buyer of insecticides and disinfectants for institutions, railroads, factories, hotels, and other large consumers, is going to buy on a basis of actual value. The day of wild and unsubstantiated claims by irresponsible suppliers, and of glib, but truthless sales gab, is headed for the nearest exit. Just how soon that exit is reached, depends to a great extent on how soon the insecticide and disinfectant buyers of the country are made familar with the standard specifications of the National Association of Insecticide & Disinfectant Manufacturers, and are educated in their use. But whether that takes six months or six years, the intelligent buyer is eventually going to be convinced that these specifications are for his protection, and that of the honest manufacturer, and he is going to adopt them in their present or revised form.

FROM manufacturers of roach powders, we have received complaints of late against the blue tinted sodium fluoride required by some municipalities. Their complaint is that the tinted fluoride, when mixed with other ingredients, frequently gives a dirty grey or brownish powder that is unsightly when used in the manner common to roach powders. They state that large users have protested to them and some are refusing to buy their products because of the color. They also state that there has been a falling off in demand for fluoride roach powders, and lay it to buyers who refuse to purchase further, but who do not file a complaint or take the trouble to give their reasons. They also claim that some suppliers of roach powder are completely substituting other and less effective ingredients, such as borax, merely to get away from the color of the fluoride.

That sodium fluoride in tinted form is far more safe than as a white powder has been confirmed by the record. In fact, the tinting of insecticide poisons has recently been extended to take in the agricultural arsenates, which are being colored pink. Perhaps some other color for fluoride instead of the nile blue might be more suitable. At any rate, if there is as much to these complaints as has been suggested, it would be distinctly to the advantage of both fluoride and roach powder manufacturers to reopen the subject for discussion at this time.

Insecticide Tests on Roaches

The poison-pill and rubber-collar methods for testing insecticides against the American cockroach

By F. Munger and E. H. Siegler

*U. S. Department of Agriculture**

DURING a search in 1932 for new insecticides, the writers attempted to use the American cockroach (*Periplaneta americana* L.) as a test insect. This cockroach was readily reared, but it has certain characteristics that make it unsuitable as a general test insect for obtaining close quantitative results. For example, the poisoned roaches sometimes regurgitate, making it impossible to determine the exact amount of poison actually retained. Furthermore, since the cockroach is loath to eat poisoned food, starvation may become a complicating factor. However, it is believed that the methods developed and certain of our findings may be of value to other entomologists.

* National Agricultural Research Center, Bureau of Entomology and Plant Quarantine, U. S. Dept. Agriculture, Beltsville, Maryland. E. H. Siegler, Senior Entomologist; F. Munger, Junior Entomologist.

Rearing the Cockroach

The rearing cage consisted of a wash boiler provided with a removable screen cover. The cover was used mainly to prevent occasional loss by flight of the adults. As a further means of preventing the escape of the insects, the inside surface of the boiler was smeared with a vegetable fat to a depth of 6 inches around the top. The food given to the roaches consisted of oatmeal, bread, and occasionally some fruit. Water was furnished by a 2-quart jar inverted in a shallow dish. Corrugated paper strips were provided for the deposition of eggs, but egg capsules were deposited in any available crevice. Although some of the eggs were devoured, a sufficient number remained to provide a constant supply of roaches for the work.

Both the rearing cage and the small testing cages were held in a dark room at 80°F. and 50-60 per cent relative humidity.

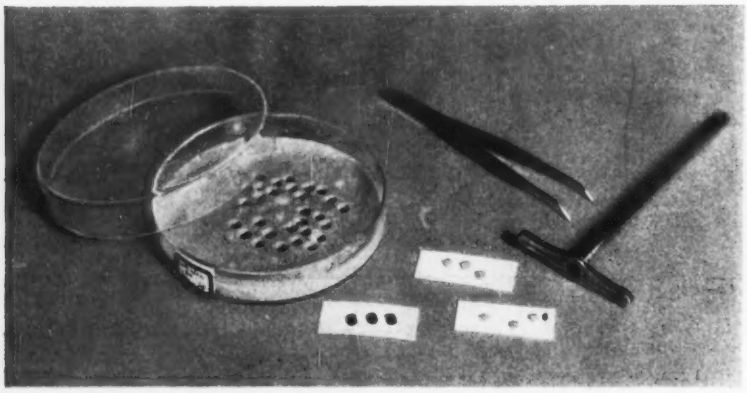


Fig. 1.—Poisoned food on cards as offered to the cockroaches

Poisoned-Pill Method

Food formula. A food was prepared by heating 25 grams of a 12.5 per cent solution of gelatin to about 150°F. and adding 5 grams of a mixture of 1 part (by weight) of beef, desiccated and ground, and 9 parts of finely ground oatmeal. To the entire mixture were added the test chemical and two drops of formaldehyde (40 per cent solution by volume). The mixture was stirred constantly while cooling, and as it began to gel was poured into a Petri dish (fig. 1) and placed in a refrigerator. A fairly homogeneous mixture, which was usable over a period of several weeks, was thus obtained. The formaldehyde served not only to set the food but also as a preservative. A concentration of formaldehyde much greater than this in the food proved to be harmless to the roaches.

Poisoned pills. For convenience in handling and weighing the poisoned food was cut with a cork borer into small pills (fig. 1). The pills were weighed, laid on small cards, and placed in the feeding vials of the cage. Some loss in moisture occurred, but by weighing the Petri dish containing the food each time it was used the quantity of poison offered to the roaches could be calculated with a fair degree of accuracy.

Testing cages. The testing

cages had three wooden sides and three perforated-celluloid sides (fig. 2). In one of the wooden sides two holes (slightly tapered) were drilled

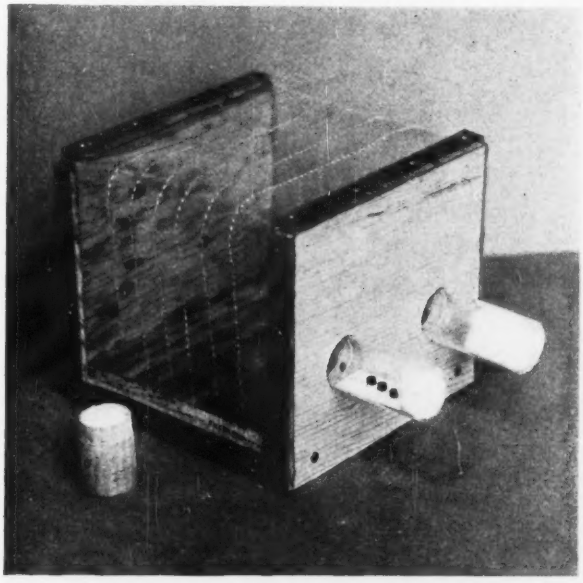


Fig. 2.—Celluloid-covered testing cage, showing vials containing poisoned food and moist cotton

to allow the insertion of glass vials, one containing poisoned food and the other moistened cotton.

Observations. During the tests it became evident that the roaches were loath to partake of the poisoned food. These observations were in accord with those made by Marlatt.[1] who states that "roaches often seem to display a knowledge of the presence of poisons in food, and notwithstanding their habit of eating practically all sorts of food, a very little arsenic in baits seems to be readily detected by them." The writers have found, however, that in the absence of other food the roaches will consume poisoned food.

The roaches exhibited considerable differences in their feeding reactions towards the various chemicals that were incorporated in the pills. Comparatively large quantities of alpha-naphthylamine and lactic acid were consumed, but only a small quantity of lead arsenate. To what extent starvation may have influenced mortality it is impossible to say, although no deaths occurred during an 8-day starvation test in which the roaches had access to moistened cotton. Some of the cockroaches died in the tests in which lead arsenate or sodium arsenate was used, but all the roaches survived in experiments with sodium fluoride, lactic acid, nicotine sulfate, alpha-naphthylamine, and rotenone.

On pills containing 0.3 gram of alpha-naphthylamine in 30 grams of food the roaches fed rather freely, but when the concentration of this compound was increased 10 times the roaches avoided the pills. No roaches died during the 7-day period of the test. With rotenone, on the other hand, considerably more poison was eaten when the concentration was increased from 0.3 gram to 1.5 grams in 30 grams of food. In spite of the heavy consumption of rotenone, no deaths occurred.

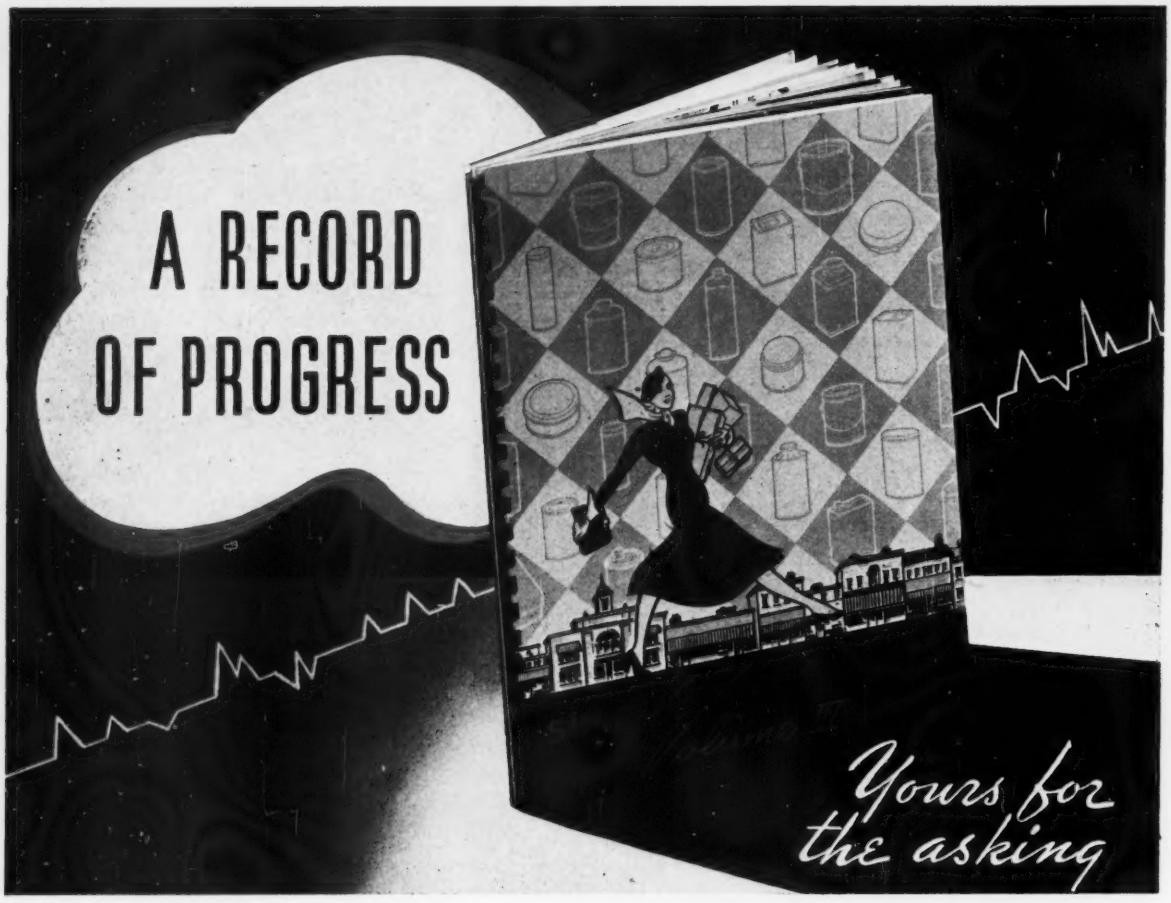
All the roaches fed pills containing sodium fluoride, 0.3 gram in 30 grams of food, survived for 23 days. When the concentration of sodium fluoride was increased five times, however, the roaches refused to eat, and at the end of 28 days 89 per cent were dead. This mortality may have been due to starvation rather than to the effect of sodium fluoride. It seems evident that sodium fluoride is distasteful to roaches and that they will not willingly eat it even to satisfy their hunger. But the cockroach's instinct to cleanse its appendages after contact with sodium fluoride dust may cause it to consume an appreciable amount of the poison regardless of how distasteful and injurious it may be.

Fig. 3.—Method of enlarging hole in the rubber collar

The writers' results are in agreement with those published subsequent to their experiments by Hockenyos,[2] who concludes "that the roach must lick a considerable area

[1] Marlatt, C. L. Cockroaches. U. S. Dept. Agr., Farmers' Bull. 658 (rev.), 15 pp., illus. 1928.

[2] Hockenyos, G. L. The mechanism of absorption of sodium fluoride by roaches. Jour. Econ. Ent. 26:1162-1169. 1933.



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of his appendages before enough fluoride is taken through the mouth to produce death in a reasonably short time."

possible to prevent the poison from being taken internally through the mouth.

The equipment required for

Fig. 4.—Inserting the head of the chilled insect

Rubber-Collar Method

After the foregoing experiments with stomach poisons had been completed, the writers developed a technique by which to determine the effect of sodium fluoride and lead arsenate applied to the body parts alone. By this method, which they call the rubber-collar method, it is

Fig. 5.—Cockroach in vial held with rubber collar

the rubber-collar method includes very thin vulcanized rubber tissue (fig. 3) having good elasticity and tensile strength, a wide-mouth bottle, and a number of small glass cylinders 7/8 by 2 inches (fig. 5). A small hole, about the size of a pinhead, is first made in the rubber tissue (fig. 3, A), which is then stretched over the bottle until the hole is enlarged to accommodate the head of the insect (fig. 3, B). The rubber tissue is held in place with a rubber band. The insect is chilled in a chamber with ice, and, while still quiescent, its head is inserted through the hole (fig. 4). The rubber band is then removed, thus allowing the rubber tissue to return to normal and hold the head securely in place. The rubber tissue is then attached to the glass cylinder by means of a rubber band, with the head of the insect on the outside (fig. 6).

Sodium fluoride was then dusted heavily on the body and appendages of the cockroach posterior to the rubber collar. The open end of the glass cylinder was then closed with a cork stopper which contained a cotton plug. Check insects were similarly prepared.

Sodium fluoride killed as a contact, whereas the check insects were alive and apparently in good condition at the end of 24 hours, when the experiment was concluded. These results are also in agreement with those obtained by Hockenyos (*loc. cit*). Similar tests were made, in which lead arsenate was dusted on the bodies of the insects, but no deaths occurred within 24 hours.

Summary

Certain methods followed in using the American cockroach as a test insect for studies of insecticides are described. Although it is loath to eat materials which may be harmful to it, the cockroach will ingest lead arsenate, sodium arsenate, sodium fluoride, and other materials when mixed with a suitable food. In the experiments with sodium fluoride by the poisoned-pill method there is insufficient evidence that the cockroach was killed by the quantity of chemical taken internally by means of the mouth. On the other hand, when thoroughly dusted on the segments posterior to the head by the rubber-collar method, sodium fluoride caused death within a comparatively short time, whereas lead arsenate, similarly applied, apparently did not affect the roaches during a period of 24 hours.

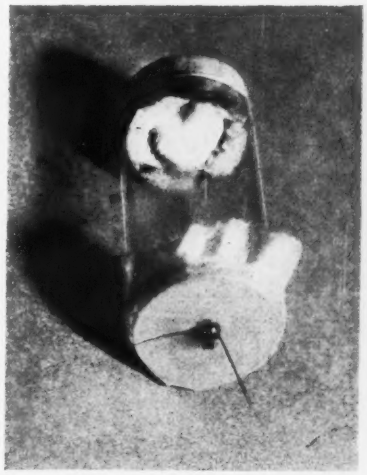
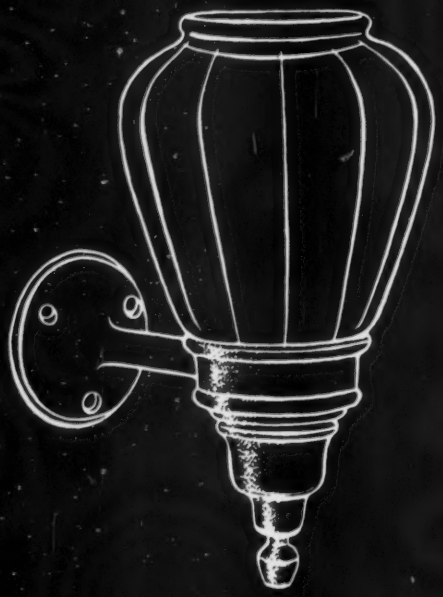


Fig. 6.—Cockroach with rubber collar, head protruding

GRAVITY



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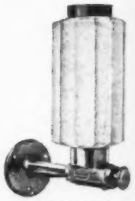

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What of 1938 in INSECTICIDES?

If your insecticide sales did not increase at least 30% this year, perhaps you are falling behind the parade, and had better look ahead to 1938.

THE 1937 insecticide season,—which refuses to slow down with the arrival of fall,—is generally considered to be the best year's business on insecticides that the industry has ever had. As late as the middle of September, suppliers of insecticide raw materials were still reported behind on deliveries and working overtime to catch up with orders that have continued to be received in substantial volume through the early weeks of the fall,—when insecticide demand normally suffers a sharp decline.

Estimates of the increase in volume of insecticide business this year run all the way from twenty-five to forty per cent above 1936 levels. The leading nationally advertised brands have, it is believed, taken the "lion's share" of this increase, but to judge from reports of raw material suppliers, based on their sales records, the small manufacturer, with brands having a strictly local sale, has also shared materially in the increased 1937 business.

To trace the factors behind the increased sale of insecticides in the 1937 season, it is necessary to go back to the mild winter of 1936-1937. With comparatively moderate temperatures prevailing all over the country last winter, the insect population at the start of the 1937 season was abnormally high. Floods in various parts of the country in the spring brought greater quantities of roaches and water bugs; and the generally warm and moist summer which followed resulted in a profusion of other insects. The absence of drought conditions this year, which cut down the insect population in previous years, meant that there have been more insects left late this season to be killed by insecticides. The season has been definitely prolonged as compared with previous years, and numerous local and unusual infestations have added substantially to the insecticide demand.

Then too, the factors of price and consumer purchasing power have played an important part in 1937 increased sales. The low priced raw materials which the insecticide manufacturer was able to secure early this season, enabled him to lower his selling prices to the consuming trade, and this drop in the retail market no doubt aided sales. Pint cans of some of the nationally advertised brands have sold as low as 23 or 25c in eastern areas this season. The result has been that some potential buyers who were unwilling to pay what they considered unduly high prices in previous seasons, have been converted into regular insecticide users this year.

The generally better financial situation of the lower and middle strata of the population has also acted as a sales stimulant. It is in these groups, after all, that the insecticide manufacturer looks for most of his volume. Pinched as she was for cash a year or so ago, the average housewife was reluctant to spend any part of her budget for insecticide. With the return of more normal payrolls, there has been more money to spend for the lesser important household necessities.

ANOTHER explanation for the prolonged 1937 season may be found in the fall campaigns which are being put on by some manufacturers. In past seasons the normal course has been to concentrate selling activities in the spring, timing window displays and advertising to coincide with spring house cleaning, warmer weather, reappearance of screens and the first appearance of flies and mosquitoes. Many manufacturers have had a way of considering the season over by the time the mid-summers reorders from dealers have been filled.

This year, some of the more alert members of the trade have discovered that it is possible and profitable to follow up with an aggressive fall campaign. The average American housewife is just as industrious with her fall housecleaning as she is with the spring clean-up. Digging back into closets, up into cupboards, taking up rugs and carpets, she discovers insect infestations that demand treatment. Moving day, which may be anywhere from Sep-

tember 1 to mid-October, brings further demands for insecticides. The family occupying a new home may find that there are unwelcome tenants already occupying the premises, and the family that has just vacated the premises may take part of their insect population with them to scatter through other quarters via the medium of moving vans. Furnaces that are started up in the fall after being idle through the summer wake up some of the insect life that has dozed quietly above the pipes and in the floor cracks through the early fall, causing them to spread out through the house in search of other quarters, and further stimulating the fall demand for insecticides.

The exterminating trade has long recognized the fall of the year as a season of increased demand for their services for the reasons noted. If activity picks up for them in the fall, the same causes should, and do, provide an increased demand for insecticides, which can be converted into sales if the insecticide manufacturer capitalizes the opportunities presented. The fall sales campaigns need not reach the proportions of the spring drive, but certainly some of the budget for advertising, window displays, dealer sales aids and promotional material should be reserved for the late summer and fall season.

The fall campaign might well be timed to coincide with moving day in each different locality, with emphasis being placed in advertising and window displays on the importance of occupying clean, insect-free premises. Combination displays might also be worked out in hardware, grocery or drug stores, taking advantage of the fall house cleaning season, and tieing in insecticides with cleaning materials, soaps, mops, scrubbing pails, etc. The emphasis in the fall campaign might well be placed on powders and special liquid insecticides, rather than on the regular fly-spray, as of course the demand is more for products for use against roaches, bed bugs and the crawlers in general, rather than for the control of flies and mosquitoes as is the case in the spring season.

IT is worth noting, however, as an interesting sidelight on the current season, that some of the newer liquid insecticides are said to be proving more effective against crawling insects. The insecticides that have experienced the greatest increase in sales this year are reported to be the brands that include derris, rotenone and other added materials in their formulae. According to interviews with retailers, consumers appear more impressed with the potency of the materials being sold this year.

And in this connection, the point has been made that the small local insecticide manufacturer who has one "all-purpose" brand which he sells in competition with the nationally advertised brands, *must* either bring up the knock-down and killing power of his brand, or face the prospect of losing ground to his national competitors in seasons to come. In a recent survey conducted by *Soap* among users of insecticides, the most common comment in regard to effectiveness was that many brands, while comparatively efficient against flies and mosquitoes, do not live up to their claims when used against the crawling insects, particularly the bedbug and roach.

The survey indicates also that the offensive odors of the brands that do not yet use a deodorized base are also a distinct drawback to sales. The manufacturer who does not back up his product with a substantial advertising campaign is at a handicap right at the start, and if he does not make some effort to have his product stand out from its competitors by its effectiveness and lack of unpleasant odor, he will find that the local dealer will have less and less inclination to push its sale or even to stock it.

A RECENT study of the stock situation in a number of dealer outlets indicates that the average drug store, grocery store or hardware store stocks a comparatively small number of insecticide brands. The average number is between five or six brands, with an occasional store offering as many as ten or twelve. Most dealers seem content to stock a few of the national sellers in the liquid line, along with one powder and one paste, and with this selection, consider their line sufficiently complete. They tend to lean heavily on the big consumer advertising campaigns behind the national brands and apparently be counted on to do little or nothing to stimulate sale of brands which are not backed up by advertising. This puts it squarely up to the small local manufacturer himself to take the necessary steps to see that his brand does not fall behind in the sales parade. In the first place he should realize that increased sales this year do not necessarily mean that his product is "on the rise." Sales of all insecticides have increased sharply this year, and if his sales gain has been less than the average of thirty odd per cent, there is cause to investigate. If sales are to be kept high in the 1938 season, which may not be such a good one as 1937, plans should be laid now.

As to the product itself, it seems apparent that old formulas must be revised in the light of recent developments in the insecticide raw material field over the past few years. If single "all-purpose" insecticides are still to be offered, it has been stated that they must be given characteristics which will make them more effective against crawling as well as flying insects.

The policy of offering individual products for special insecticidal jobs, continues to be agitated by some manufacturers. A manufacturer of insecticides who can establish in the mind of the retailer the impression that his particular product is specially fitted for use against one particular insect, can probably look for increased sales in the face of strong competition from the national brands. Particularly where the lower income groups are concerned, the retailer is often the confidant and adviser of the house-

(*Turn to Page* 117)

Evaluating Liquid Insecticides

Comments on the 1937 official method and use of the Official Control Insecticide in grading liquid household sprays.

By W. A. Simanton*
Gulf Research & Development Co.

FOR five years the Peet-Grady Test has been in use as the official method for evaluating liquid household insecticides. Probably the adoption of the test in 1932 by the National Association of Insecticide and Disinfectant Manufacturers was brought about more by the need of a practical biological test for the rapidly growing fly-spray industry than by merits ascribed to the testing method itself. The adoption of a new method that showed promise was considered more advisable than postponing action until such time, perhaps years later, as a perfected method would be available.

Within the two years following adoption, Peet-Grady chambers were installed in the laboratories of several member organizations; and thus, facilities were available for cooperative tests to determine the usefulness of the method for evaluating a sample of commercial fly spray. It was quickly learned that a given laboratory could usually reproduce its evaluation of an insecticide with a fair accuracy. However, when the same sample was tested by several laboratories, the evaluations were so variable as to be of little value. Disagreement of the ratings obtained by the various laboratories was not surprising because the evaluations were based on the average percentage of flies killed by the insecticide, and this figure was dependent upon the kind of equipment employed, the technique of testing, and the manner in which the flies were reared. No two laboratories were identical, and some were quite dissimilar in these respects.

One of the more noticeable reasons why laboratories disagreed on the rating of a given sample was that each laboratory exhibited a characteristic mortality range or kill level which was different from the kill level of the others. For example, one laboratory would usually obtain a kill between 40 and 50 per cent with a 1-pound per gallon pyrethrum extract; whereas, another laboratory generally killed 60 to 70 per cent of the flies with the same insecticide. The encouraging feature of the early tests was that a few laboratories, in a majority of cases, could agree on the relative toxicities of two insecticides differing in pyrethrin content.

From the experience thus gained, it was obvious to all concerned that the next step was to secure a suitable reference or control insecticide that could be employed by all Peet-Grady test operators as a basis for establishing the killing power of an unknown sample. The problem of investigating the possible advantages of using a reference insecticide was undertaken by the Committee on Methods of Testing Insecticides at its meeting in June, 1935.

In order to best utilize the facilities available for this study, the Association entered into a cooperative research agreement with the United States Department of Agriculture, Bureau of Entomology and Plant Quarantine. Dr. F. L. Campbell, then with the United States Department of Agriculture, analyzed the data which were obtained from laboratories of the member organizations represented on the Committee.

The cooperative tests mentioned above consisted of many replicate Peet-Grady tests on each of three samples of insecticides: (1) pyrethrins 1-2000; (2) pyrethrins 1-1000; (3) benzophenone 5 per cent. The samples were run in the order 1, 2, 3; 1, 2, 3; etc., in such a manner that each sample of the triad was tested on the same batch of flies on the same day. Most of the ten laboratories ran 50 individual Peet-Grady tests on each sample, using paper on the chamber floor. Benzophenone was included because previous experience indicated that its action was similar to that of pyrethrum. Being a pure, stable, crystalline chemical, it was hoped that benzophenone would fulfill the requirements for a reference insecticide.

Early reports from the cooperating laboratories clearly showed that the benzophenone solution held no promise of being a suitable reference liquid. However, when the complete data were assembled, it was found that all ten laboratories had rated Sample 2 higher than Sample 1, thus indicating that a pyrethrum insecticide could be designated as a standard for comparing household insecticides. At the June meeting of

* Member, Committee on Methods of Testing Insecticides, Natl. Assn. of Insecticide & Disinfectant Mfrs. Author's Note: "This manuscript was prepared at the suggestion of the Committee on Methods of Testing Insecticides, and copies were previously sent to Dr. Alfred Weed and Dr. F. L. Campbell in order to make sure that the subjects discussed were in accord with the Committee's views."

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the Association in 1936. Campbell's summary of these results was used as the basis for the recommendation to adopt a specified pyrethrum solution as a standard for comparative tests.

While the Official Control Insecticide was officially adopted by the Association in June, 1936, and the liquid distributed to laboratories in September of that year, little use was made of the liquid other than in experimental evaluations. The reason for this was that no method was yet established for uniformly expressing the comparative kill data obtained. When Campbell's complete analysis of the cooperative test data was presented to the Committee at the December, 1936, meeting, it was shown that the degree of difference between the average kill figures obtained for two insecticides could be used as a means of evaluating products, provided that all replications in the series could be run with reasonable similarity in results. In addition to the figures supporting this major conclusion, other data were computed during the analysis which shed light on many factors involved in testing. Generally this additional material fell in line with the statistical and biological concepts of toxicity testing which have been established by data from a variety of published testing procedures.

At the December, 1936, meeting the Association voted to adopt an official procedure which would enable a uniform reporting of Peet-Grady test results for samples run in conjunction with the Official Control Insecticide. To this end the writer assisted by Dr. Campbell and other members, acting for the Committee, drafted the detailed method (printed below) which in mimeographed form is included with every bottle of 1937 Official Control Insecticide.

Official Method of Evaluating Liquid Spray Type Household Insecticides in Conjunction with the Official Control Insecticide

1. The tests shall be conducted in accordance with the current Peet-Grady test procedure. After each test thoroughly wipe out the chamber using a cloth saturated with carbon tetrachloride. When paper is used on the floor, it should be changed after each group of two or three tests.

2. The tests must show an average kill for the O.C.I. to lie within the range between 30 and 70 per cent kill. The dosage of the O.C.I. and Unknowns compared with it may be altered, if necessary, to bring the average kill of the O.C.I. within the required range. It is desirable to cause the O.C.I. to kill between 50 and 60 per cent of the flies.

3. No more than two Unknowns may be tested in conjunction with the O.C.I. in any one series. Ten tests of the O.C.I. and of each of the Unknowns shall be made in parallel; i.e., test each sample of the series the same number of times with flies of the same batch, and test every sample of the series the same number of times during any one day. The three samples in a series should be randomized in order of testing. For example, 1, 2, 3; 2, 3, 1; 3, 1, 2; etc., until thirty tests have been made. When only one Unknown and the O.C.I. comprise the series, the order should likewise be randomized. For example, 1, 2; 2, 1; 2, 1; 1, 2; etc., until twenty tests have been completed.

4. The standard error of the mean difference between the average O.C.I. kill and the average Unknown kill must be less than 3. (See example under paragraph 6). If it is 3 or greater, the differences between pairs were too variable and to make the results valid additional paired tests must be run to bring the standard error of the mean difference down to 3 or lower.

5. Calculate the mean difference between kill obtained with the Unknown and that obtained with the O.C.I. Denote the difference between kills by the appropriate grade according to letter:

Grade AA, excellent, +21 or greater
Grade A, good, +11 to +20
Grade B, equal to O.C.I., between −10 and +10
Grade C, poor, −11 to −20
Grade D, little value, −21 or lower.

Suggested Additional Method of Reporting Kills. If it is necessary to supply a numerical value for the Unknown in addition to the grade designation, add a positive difference between Unknown and O.C.I. to 60 or subtract a negative difference from 60, and write ±3 after the result. Thus, if an Unknown gives a kill 7 points higher than the O.C.I., it is given a B rating and a numerical evaluation of 67±3. The latter figure indicates that other laboratories reporting on the same sample would probably report a kill between 64 and 70.

6. The following example illustrates the arrangement of tests and calculations described in the preceding paragraphs. When two Unknowns and the O.C.I. are tested in series, the first table should consist of differences between Unknown No. 1 and the O.C.I.; the second table should show differences between Unknown No. 2 and the O.C.I. The method of calculation is shown in the sample below:

Pair	Date	Batch	Unknown No. 1 % Kill	O.C.I. % Kill	Difference	Deviation from Mean Difference	Deviation Squared
1	12/8	12/3	58	49	+9	+2	4
2	12/8	12/3	62	50	+12	+5	25
3	12/8	12/3	50	47	+3	−4	16
4	12/8	12/4	52	46	+6	−1	1
5	12/9	12/4	60	52	+8	+1	1
6	12/9	12/4	65	50	+15	+8	64
7	12/9	12/5	54	48	+6	−1	1
8	12/9	12/5	56	57	−1	−8	64
9	12/10	12/5	51	44	+7	0	0
10	12/10	12/5	57	52	+5	−2	4
			56.5 M	49.5 M	7.0 M.D.	0	180 Sum d^2

Mean difference = 7.0; standard error of M.D. =

$$\frac{\sqrt{\frac{\text{Sum } d^2}{n-1}}}{\sqrt{n}} = \frac{\sqrt{\frac{180}{9}}}{3.16} = 1.42$$

1.42 is less than 3, thus indicating the test has been properly conducted.

The letter *n* (in formula above) denotes the number of paired tests. This number is always 10 except when it is necessary to run additional tests to bring the standard error of the mean difference down to 3 or less.

The Unknown in the example above tests 7 points better than the O.C.I.; therefore. Unknown No. 1 is a B grade insecticide having a numerical rating of 67±3. If Unknown No. 2 in this same series gave a kill 7 points lower than the O.C.I., the calculation would be similar, but the difference would be —7 and the sample would therefore have a rating of B with a numerical value of 53±3.

By way of explaining the various provisions of the method to those not closely associated with its preparation, the following paragraphs, which refer by number to the points in question, are included:

1. Previous experience in nearly every laboratory has pointed to the fact that the usual ventilation of the chamber after each test is not sufficient to remove all traces of insecticide. Carry-over toxicity often occurs to increase the kill of either the sample or the O.C.I. to such an extent that the true difference in kill is covered up. Carry-over is particularly noticeable when sprays containing relatively non-volatile perfumes and solvents are tested. Carbon tetrachloride was suggested as the cleaning solvent because of its good solvent properties combined with non-inflammability and ready volatility. The optional use of gray bogus paper on the floor as a blotter to prevent down flies from being enveloped in film of settled spray was also considered an aid in preventing accumulation of toxic material on the chamber floor.

2. Typical toxicity curves that show the per cent mortality obtained when various concentrations of the same insecticide are applied to the test insect are more or less S-shaped, the straightest portion usually being between the range of 30 to 70 per cent mortality. Kill differences falling within this central portion of the curve are more nearly comparable than those falling below 30 per cent or above 70 per cent mortality. For example, if the O.C.I. gave a kill of 40 per cent and Sample A gave a kill of 60 per cent, the difference in kill would be 20 points. If, however, the O.C.I. killed 70 per cent. Sample A would not be expected to kill 90 per cent of the flies but only about 81 per cent. With the higher kill level in the second comparison the kill difference would be 11 points instead of 20 points because the toxicity curve flattens appreciably as the mortality approaches 100 per cent. While the 50 per cent point is statistically the soundest point for comparison, 50 to 60 per cent was the kill range suggested because the O.C.I. normally gives a kill within this range when paper is not employed in testing.

3. Limiting the series of tests to three samples (two unknowns and the O.C.I.) was advisable for several reasons. One of these was that not less than a third of the flies would be tested against the O.C.I.; and thus sound data, based on a sufficiently large number of flies, would be available for comparing the difference between batches. Another reason was that several of the factors suspected of causing variations in results could be minimized by running the paired test for each sample within a short period of time. Such factors are temperature, humidity, feeding activity, etc. Also, by limiting the series it was easy to obtain the same number of replications of each sample on a given batch during one day without sacrificing laboratory efficiency.

4. In order to be able to place confidence in kill figures obtained by any test, it is necessary to examine the test itself to learn if it is consistent in the data obtained from replication. Paragraph 5 shows that the Association desired 10 points as the latitude in grading insecticides. In order to show a mean difference of 10 points to be significant with ten paired tests, the standard error of the mean difference must be less than 4.45. Since it was found from Campbell's assembled figures that most laboratories could usually get standard errors lower than 3 if care was taken in performing the test, this figure was adopted as the maximum standard error because it would allow a difference of 7.5 points to be statistically significant and a difference of 10 points to be highly significant.

5. The grading system proposed by the committee was designed to provide tentatively a means of expressing insecticidal efficiency using group letters instead of numerical ratings, thus avoiding discrimination between closely rated samples, since one sample may have obtained its slightly superior rating by reason of normal testing variability.

It was realized that quantity insecticide buyers, having become accustomed to the old manner of expressing toxicity to insects in terms of per cent kill, would continue to ask for figures denoting the kill to be expected from the product purchased. The figure 60 per cent has been in use for some time as a criterion for evaluation; hence, chiefly to avoid confusing purchasing agents with new criteria, this figure was proposed as a basis for expressing numerical kills.

6. The method of calculating results from paired tests is well suited to Peet-Grady test data. The simple arithmetic can be done by anyone. Pairing eliminates the variations due to batches of different resistances being used; to a large extent it compensates for variations in testing technique; and it also tends to correct for the many changes that may occur in the fly population during the day's testing. Further, it is not necessary to alter the allowable standard error when mean differences of varied magnitude are obtained.

In order to determine the

(*Turn to Page* 115)

What Fly Spray Odor— If Any?

By Waldo F. Reis
van Ameringen-Haebler, Inc.

BEFORE discussing the perfuming of an insect spray, it might be appropriate to consider thoroughly whether there is a need, from the manufacturer's standpoint, to spend any money for this purpose. By far the largest percentage of money spent today is not spent on the essential utility of the average product, but on the extras incorporated in it which create the added desire of the buyer to possess the product. Whether it be clothing, food, transportation, kitchen utilities or furniture, one will find that if each individual item were stripped of everything but the essentials for the purpose, two things would happen,—first, the price of the individual products would be reduced very considerably, and secondly the desire of the purchaser would be considerably lessened, resulting in a far smaller number of purchases at lower prices. Attractive colors, shapes, materials, etc., have created a tremendous amount of additional purchases in fields where formerly the purchases were restricted.

The unattractive and noisy alarm clock, of yesterday is rapidly disappearing, but today far more of the attractively shaped and artistically colored alarm clocks are sold than was considered possible twenty years ago. Motor cars, which are supposed to supply transportation, reached the sales point of today not only through their increased dependability, which can be considered as a necessity, but also through the great increase in riding comfort, ease of handling, and greatly enhanced appearance. In other words, successful sales and a satisfactory sales volume depend on many more factors than merely the usefulness of the product. Consciously, but in many more instances subconsciously, sales are influenced by an appeal to our sense of sight, touch or smell, in addition to the basic need and uses for the product.

The first household insecticide sprays on the market filled a decided want, namely, the killing of insects, and as a result they were accepted by the public whenever insects became so troublesome that something drastic had to be done about it. The word "drastic" is used advisedly, as those first household sprays were made usually with a base of the cheapest and rankest kerosene. In order to cover up this objectionable odor, the cheapest and most powerful perfume materials were used. Oils of citronella Java and citronella Ceylon, methyl salicylate and even oil of mirbane are well-known examples of the type of perfume used.

The combination of these products with a rank-smelling kerosene produced sprays which undoubtedly built up a tremendous amount of prejudice against their use. It is perhaps safe to say that the "remedy was worse than the disease." The correct spray, from a killing standpoint, in those days was doing a good job but nevertheless many people preferred to stick to the fly swatter rather than fill their homes with a highly disagreeable odor. This situation retarded the general sales of household sprays considerably, and it will still take quite some time before the unpleasant impressions connected in the minds of many people with household sprays will have disappeared.

Fortunately, the more alert manufacturers realized the importance of odor in the merchandising of fly sprays and further realized that the strong, cheap odor was as unnecessary as it was undesirable. Refinements were made in the kerosene base which opened a wide field in the choice of perfume materials. The past few years have shown a very decided trend in the direction of odor improvement, and away from the earlier cheapness and crudeness. There are now available many grades of oil bases ranging from an ordinary type of kerosene to a comparatively odorless, colorless, tasteless product. The list of perfume materials used has been broadened to include any products that make for improvement in quality of odor, consistent with practical costs.

Before going into detail regarding the types of perfumes now being used, let us try to determine the ideal characteristics of a household liquid spray insecticide. It should first meet the specifications set

up by the National Association of Insecticide and Disinfectant Manufacturers. These are outlined in the *Soap Blue Book*, 1937, pp. 155 to 162. Then, and this is a major distinguishing feature of the fly sprays sold on the American market,—it must have an odor which is agreeable when smelled from the can. It must be pleasant, and not suggestive of kerosene when initially sprayed and at all stages during its evaporation.

The entire subject of odor is decidedly abstract and intangible. Each individual has his own decided preference in regard to perfumes, and here is where the manufacturer of household sprays runs into his first difficulty. The sense of smell in most people is far less trained than the sense of touch, and still less than the sense of hearing or the sense of sight. People are not accustomed or trained to analyze their likes and dislikes as far as perfume odors are concerned. As a matter of proven fact, a far better opinion can be obtained about one's reaction to an odor if no particular mention of odor is made to the subjects whose opinion is desired. In other words, their subconscious reaction is more accurate than their conscious reaction.

A woman or man, when specifically asked how he or she likes a certain odor, will in nine cases out of ten give an answer which is proven to be wrong by subsequent tests. On the other hand, an unsolicited opinion will generally prove to be substantiated by further tests. For instance, if a person entering a room which has been sprayed remarks voluntarily "This room smells disagreeable," or "This room smells agreeable,"—this unsolicited and subconscious reaction will prove to be correct. Bringing persons into a room with the request that they give their opinion, will prove to be of very little value. Their odor reactions have not been trained to analytical observation.

Thus we come to a point which is not generally appreciated by the average manufacturer. For the most part, most consumers are not conscious of the fact that household insecticides are perfumed. Their untrained olfactory sense is not aware of the presence of perfume until it is there in quantities which the perfumer would consider to be excessive. In other words, the product must be strongly perfumed before the consumer comes to the realization that it contains any odor other than the unpleasant base material. This fact was definitely substantiated by interviews with 25 disinterested housewives, all but two of whom were unaware that any perfume material at all had been incorporated in the fly sprays that they were using. If the product has been treated with a balanced perfume in the proper proportions to cover any objectionable odor and leave a small excess of perfume, the consumer's untrained sense of smell will find the spray agreeable, but will not notice it as being "perfumery."

Scores of manufactured articles bear testimony to this fact. One of the most popular soaps on the market today is considered by the public to be absolutely free of any odor, yet in reality it contains a substantial amount of perfume. Hundreds of products,—among them, paints, rubber goods, paper, glue, textiles, shoe polish, — contain aromatics unknown to the consumer. Although unnoticed, this perfuming is in many cases a very important attribute to the success of the product. To the buyer, the perfumed article is more agreeable, and if it were to be omitted, its absence would be immediately and unfavorably noticed.

A fly spray is therefore ideally perfumed if it does not suggest kerosene at any stage of its use, and does not too definitely suggest perfume, but rather an atmosphere of pleasant, fresh and agreeable odor. At first thought, these may seem to be impossible conditions, yet I believe that many of the current American household sprays closely approximate this ideal.

The perfectly perfumed fly spray may be attained by the addition of a correctly balanced perfume to an odorless base, or to a good average grade of refined oil base. If the cheapest kind of kerosene is used, it is virtually impossible to cover completely the objectionable odor, without using an excessive amount of perfume.

The various manufacturers of petroleum products produce oils which usually exhibit individual characteristics, depending upon the quality and source of the raw material, and the degree of refinement. Most of the bases now used fall within a range of a minimum boiling point of 325° F. and a maximum of 510° F. Some of these oils have a preponderance of the lighter fractions and others contain a relatively small percentage of lights and a large proportion of the heavy, high-boiling, slow-evaporating fractions. Examination of scores of these fly spray bases indicates that every one is different, and that each one must be treated individually from the perfumer's point of view.

The perfuming of fly sprays, like the perfuming of soaps, requires highly specialized knowledge of the action and relative value of all available perfume materials in the medium to which they are added. In formulating a bouquet for an alcoholic handkerchief extract, the perfumer can reasonably expect his product to be unaffected by the addition of alcohol. He gets out of the perfume all that he puts into it. This is not true in the case of oil sprays. Unless he has full knowledge of the effect of the completed insecticide on all perfume ingredients used, his results may be quite surprising and disastrous. It is not difficult to appreciate the fact that unless the bouquet is formulated on the basis of a complete knowledge of the value of all available perfume materials used in any particular insecticide base, the manufacturer may not be getting his money's worth in his choice of perfume. A three-dollar bouquet, if designed correctly, may be better dollar value than a six-dollar a pound oil made with very

little knowledge of the effect of the base on the perfume.

LET us assume that we have a certain petroleum base to perfume and that it is complete with the addition of pyrethrum or other toxic materials. In order to determine the characteristics of the spray, we may add to or three standard perfume boquets in the proportion of 1 ounce to 5 gallons of oil, and then spray these in closed chambers. From observation of the effect of these particular bouquets in various types of oil, we can determine how well the new oil is covered at the initial spraying and throughout its various stages of evaporation. After this preliminary study, we are in a better position to understand the nature of the oil, and can try the effect of individual ingredients.

In determining upon the perfume materials that can be used in fly sprays, due consideration must be given to the following points:

a).—Certain perfume materials appear to have a tendency to reduce the toxicity of the spray. In this connection, essential oils which are high in terpenes or sesquiterpenes, and those which are apt to contain traces of water, are particularly to be guarded against.

b)—Perfumes must not stain or leave any residue.

c)—Perfumes must not irritate eyes, mucous membranes, or skin when sprayed.

d)—No insoluble gums or resins should be used. These products will make the spray cloudy, or will form an insoluble precipitate in the bottom of the container.

e)—Perfume materials should definitely be eliminated which have a tendency to deteriorate in the can, because of the kerosene or toxic material, or of any chemical effect of the metal.

The perfumer has a list of all available and practical materials to use in fly sprays. As mentioned previously, this list has been broadened to include products which the novice may consider entirely impractical for this use. If one pound of a product costing ten dollars a pound is as effective in covering up the odor of kerosene as ten or twenty pounds of an ingredient costing one dollar a pound, and at the same time imparts a much more agreeable odor, it certainly must be good business to use the more expensive material.

The perfumer must necessarily classify his perfume ingredients to cover the various fractions of the spray. He knows just which materials to use to cover the sharp, penetrating initial odors, and uses entirely different products to take care of the lasting, high boiling fractions. The boiling points and rates of volatility of the various perfume ingredients often give a good indication of their merits in covering up the different fractions of the base oil. For example, benzyl acetate, with a boiling point of 216°C. and a comparatively high rate of volatility, could hardly be expected to cover the fractions of a kerosene that linger for several hours.

Lethane, the organic thiocyanate toxic agent, which is used in household insecticides in varying proportions,—possesses an odor different from the odor of any oil base or pyrethrum flowers. Perfumes for spays in which lethane is used must be specially designed for that purpose. One cannot take a perfume, previously used in a spray which did not contain lethane, and expect to get as satisfactory an odor from the same perfume oil when used in a spray containing lethane.

When all preliminary testing of individual perfume materials is completed, the perfumer is ready to utilize his compounding ability to formulate the proper bouquet for the finished spray. The importance of this task is well recognized. The art of blending perfume materials to give a pleasing and agreeable result is a science which the manufacturers of fly sprays have fully appreciated. The perfumer also is naturally in a position to know the types of odors that are more universally acceptable to the consumer.

Recently some manufacturers have attempted to produce a completely odorless insect spray. This at the present stage of development is obviously impossible because of the very nature of the ingredients which must be used in the base. Pyrethrum and lethane both have characteristic odors which are apparent even in high dilutions, and cannot be removed, and therefore must be covered. And no odorless base has yet been made which does not exhibit, in spraying, some faint suggestion of petroleum. Furthermore, if such a spray could be produced, it might not be popular with the public. The addition of a properly designed perfume bouquet is, I believe, essential to make the product acceptable.

While we find it very difficult to believe the story about the nice old lady who wanted to buy one of those nicely perfumed fly sprays so that the flies in her house could die happy, it is certainly a fact that the consumer prefers the pleasing odor of the modern spray to the crude and disagreeable character of the original household spray insecticides. The history of household insecticides has shown a marked improvement in odor quality. Undoubtedly the future will continue in the same direction, accompanied by lessened consumer prejudice, and consequently increased sales.

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Oils in Soap Micelles

Oils and oil-soluble substances dissolve in soap micelles, which consist of the hydrocarbon tails of the soap molecules and which therefore act as a hydrocarbon solvent. This causes the oil to attain an apparent solubility in water. There is a definite saturation value for the amount of oil taken up. This is of the same order for a given soap irrespective of molecular weight. The amount of the solid solutes internally dissolved is limited by their solubility in the paraffin interior. A. S. C. Lawrence. *Trans. Faraday Soc.* **33**, Pt. 7. 815-20 (1937); through Chem. Abs.

practical use of the Official Method, the Chairman of the Committee on Methods of Testing Insecticides sent out a sample of unknown kill to each cooperating laboratory for evaluation in conjunction with the O.C.I. Data obtained from this series of tests, conducted in May, 1937, are summarized in Table I:

TABLE I. SUMMARY OF PEET-GRADY EVALUATIONS OF AN UNKNOWN SAMPLE AS COMPUTED BY THE OFFICIAL METHOD

WITHOUT PAPER ON FLOOR

Laboratory	O.C.I. Kill	Sample Kill	Mean Difference	Standard Error	Grade Rating
1	59.4	74.1	14.8	2.7	A
2	76.3	89.0	12.7	3.6	A—
3	51.3	78.3	27.0	2.9	AA
4	54.1	74.2	20.1	2.8	A+
5	58.8	75	16.2	1.1	A
6	60.1	71.7	11.6	1.0	A—
8	61.7	72	10.2	2.8	B+
Mean			16.1	2.4	A

WITH PAPER ON FLOOR

Laboratory	O.C.I. Kill	Sample Kill	Mean Difference	Standard Error	Grade Rating
1	42.0	59.5	17.5	2.4	A
2	33.1	57.8	24.7	2.9	AA
3	30.3	55.3	25.0	3.6	AA
4	36.0	62.9	26.9	2.3	AA
5	27.7	47.7	19.7	1.0	A+
6	40.7	50.7	10.3	1.1	B+
7	54.0	66.0	12.0	3.2	A—
Mean			19.5	2.4	A+

From the figures in Table I it is noticed that when paper was used on the chamber floor the mean difference was higher, indicating that the use of paper accentuates the difference between samples. All laboratories rated the unknown sample better than the O.C.I. by from 10.2 to 27 points. Why there should be a variation of nearly 17 points in the differences obtained by the several laboratories is not definitely known at present. Each laboratory's figures are significant; therefore, the obvious conclusion is that there are factors in each laboratory causing flies to react differently to an insecticide, in addition to those eliminated by the use of the O.C.I.

It is interesting to note the evaluations of Laboratory No. 5 which were nearly identical with the means. Laboratory No. 1 also closely approached the mean ratings.

Disregarding the discrepancies mentioned above that chiefly concern the research worker, it is quite obvious to the household insecticide industry that its products can now be more closely evaluated than at any time previously. Every laboratory can now agree on which samples are poor, which are average, and which are superior.

A few minor changes in the 1937 Official Method are undoubtedly desirable. The majority of these are known to the Committee and will be included in the next revision of the method. It should not be presumed that further manipulation of data by statistical or other methods is the solution to more accurate insecticide evaluations. More knowledge of the activity and physiology of the test insect is definitely needed. When the important factors affecting fly mortality are learned and accounted for by the testing procedure, then a more precise evaluation will be possible. Progress now being made along this line by many investigators will undoubtedly lead to further improvements in the accuracy of the Peet-Grady Test.

Modern Soap Press

(*From Page* 53)

ing machines, our other line. The best of these and most other machines of ten years ago are obsolescent today. And so it will be in the future. Inventors and engineers must live, and production managers will never be entirely content.

Speaking of inventors and engineers, I am frequently asked where I studied engineering. Since I cannot make or read mechanical drawings and barely know the difference between tool steel and mild, I have to confess that I have not had the benefit of engineering instruction anywhere. Mechanical engineering is one thing and inventing machines another. An inventor does not laboriously figure his wares out at a drafting board. In his mind he sees pictures, pictures that for all anyone knows may not be of his painting. Inventors are "born that way," but their gift can be developed by practice and instruction.

There are many schools and books for engineers, but I have never heard of either for inventors. Many inventors and potential ones fail for lack of direction and encouragement. It is worth while to encourage them. In labor saving machines alone, there is much for them to do. Nearly every article of commerce can be further reduced in cost and bettered in quality by improved methods and machines.

We believe that we have helped in soap making. Our presses have saved labor and put the slowest, most difficult and hazardous operation in the class of the fastest, easiest and the safest. By removing a constriction in the line, they have accelerated the work before and after theirs. They have further increased output by the pace they set. An hour's training will enable an ordinarily intelligent worker to press soap on them.

Skilled men only could operate foot presses. When automatic machines came in, foot press men had first call on the job of operating them. A tenth as many was required as formerly, but most of the others were supplied with new jobs in the same factory. Against any curtailment of jobs by automatic presses, the worker should credit the saving of thousands of fingers, and even lives which according to precedent would have been lost in foot pressing the billions on billions of cakes turned out so far by automatic soap presses.

Insecticides in 1938?

(*From Page* 101)

wife. She goes to him for advice on problems such as choice of insecticide, on which she feels herself poorly informed. His suggestions usually mean sales.

While improving the efficiency of his product, the small manufacturer must at the same time improve its odor. Unless it stands out from the pack by some characteristic of superiority, it cannot hope to overcome the handicap of a limited advertising appropriation. On the subject of odor, it is interesting to note the result of a test made on the subject recently by a manufacturer of a product selling on a national scale. This particular concern was not yet ready to go to a deodorized base on its big national seller, but decided to try out the idea of a deodorized base with a special brand,—in this case, a "pilot brand" to determine the future course for the major brand. The "pilot brand" showed an increase in sales of surprising proportions as compared with the regular line product, indicating a greatly increased consumer acceptance for the odorless base product.

Back of this improved product,—with a better odor and a modern container, — the manufacturer must put intelligent sales promotion. If the budget is insufficient to carry even a localized advertising campaign to consumers, the manufacturer must at least make an attempt to reach the dealers with his sales story. Store display stands will bring the product out from under the counter where the dealer normally keeps his insecticides, and window displays at proper seasonal intervals will remind the buyer of his insecticide needs. In connection with the subject of window displays it is important to remember that window space must be booked well ahead of time in desirable spots, — anywhere from six weeks to two months. The manufacturer who does not book his windows well ahead will find the desirable spots gone, and such displays as are put in may follow the season and lose the first rush of sales.

NEWS . . . . . .

Doll Brands Open Plant

Doll Brands, Inc., manufacturers of live stock remedies, disinfectants, soaps, waxes, polishes and agricultural supplies, have just opened an office and warehouse at New York Ave. and West 10th St., Huntington Station, L. I., N. Y. Dr. C. E. Doll, a Veterinary Doctor of Medicine who has practiced in Huntington for the past 25 years, heads the new concern. He has built up considerable business among Long Islanders over recent years on a number of these items, and with increased facilities and a more expanded line, will be in a position to extend his service. Warehouse stocks will be carried and distribution will be extended initially through Long Island and the surrounding metropolitan district.

Penick Appoints Representative

S. B. Penick & Co., New York, headquarters for pyrethrum and derris products, have appointed W. J. Welsh as their sales representative for Minneapolis, Minn., and vicinity. Mr. Welsh has had several years experience in the sale of insecticide raw materials.

To Advertise Sanovan

"Sanovan," deodorant manufactured by Cosmos Chemical Co., Boston, will be advertised nationally this fall. Consumer publications and drug trade papers will be used. Batten, Barton, Durstine & Osborn, Inc., is placing the advertising.

Fire at Penick Plant

The Weehawken, N. J., plant of S. B. Penick & Co., New York, was partially destroyed in a serious fire which followed an explosion, September 15. Damage was over $100,000, according to C. W. Speed, company treasurer, but is completely covered by insurance. The fire started when an employee, George Bamsel, threw a knife switch in the cellar. It spread swiftly and raged through the building for hours, but fortunately no lives were lost and there were no serious injuries. The pyrethrum milling equipment was not damaged and was again in operation a few days later. Stocks of extract were destroyed in the fire, but are being built up again, with the company's Jersey City plant working at top speed. It is stated that construction will be started within sixty days on a new extract plant for the 1938 season's requirements.

Srebren Heads Asso. Chemists

Interests headed by Arthur Srebren have purchased control of Associated Chemists, Inc., 6243 S. Ashland Avenue, Chicago. Manufacturing operations will be carried on in Spring Grove, Illinois and it is expected that the plant will be in production by November 1st. Plans are being made to handle a complete line of pyrethrum products, red squill, moth proofing compound and gums.

Seize Fluoride Tablets

A shipment of sodium fluoride tablets made by F. W. Bascomb & Son, Detroit, has been seized and destroyed by the U. S. Food and Drug Administration. The tablets, labeled as containing one-half grain each of sodium fluoride, were found to contain only two-fifths of a grain each.

I & D Assn. Board Meets

At a meeting of the Board of Governors of the National Association of Insecticide & Disinfectant Manufacturers, held Sept. 16 at the Hotel Biltmore, New York, the date and place for the 24th annual meeting,—December 6 and 7 at the Biltmore,—was confirmed. General convention arrangements will be in charge of Secretary John Wright, with the program in charge of H. W. Hamilton of the White Tar Co. and entertainment under the direction of L. J. LaCava of the Continental Can Co.

Those who attended the Board meeting in New York included President W. B. Eddy, Rochester Germicide Co., Rochester, N. Y.; vice-president J. L. Brenn, Huntington Laboratories, Inc., Huntington, Ind.; John Wright, secretary; Henry Nelson, Chemical Supply Co., Cleveland; H. M. Clark, Dr. Hess & Clark, Inc., Ashland, O.; H. W. Hamilton, White Tar Co., Kearny, N. J.; Clarence Weirich, C. B. Dolge Co., Westport, Conn.; N. J. Gothard, Sinclair Refining Co., East Chicago, Ind.; W. J. Zick, Stanco, Inc., New York. Also in attendance at a special meeting of the Board with committee chairmen, were Melvin Fuld, Fuld Brothers, Baltimore; Harold Thomas, Shell Oil Co., St. Louis; John Courlett, McCormick & Co., Baltimore; Dr. Emil Klarmann, Lehn & Fink, Inc., Bloomfield, N. J.; Dr. Alfred Weed, John Powell & Co., New York; William Hadfield, General Laboratories, Inc., Philadelphia.

Preliminary plans for the 24th annual meeting in New York call for the usual two-day business session, preceded by a meeting of the Board of Governors on Sunday, Dec. 5, and closing with the annual informal dinner and entertainment on Tuesday evening, Dec. 7.

Murray & Nickell Move

The offices of Murray & Nickell Mfg. Co., Chicago, insecticide raw material house, have been moved to 105 West Madison St. The company will continue to operate mills and warehouses at South Elgin, Ill., and a warehouse at 2608 Arthington St., Chicago, where the company offices have previously been located.

Offer New Floor Wax

Ogden Chemical Laboratories, Cincinnati, are bringing out a new no-rub liquid floor wax called "Kemsol."

Assay Red Squill

Prof. C. R. Fellers of Massachusetts State College. Amherst. Mass., who has for a number of years past been working with the U. S. Biological Survey in research and field tests on red squill, has recently offered the facilities of the college laboratories for making toxicity assay tests for commercial firms. Samples of red squill powder or extract can be submitted for assay on payment of a nominal charge of $10.00.

Exterminators Hire Secretary

Associated Exterminators and Fumigators of New York have employed W. J. Parker, Inc., of which W. J. Parker is president, to act as executive secretary of the organization. The firm acts in a secretarial capacity for a number of trade associations, Mr. Parker having had sixteen years experience in this work. William O. Buettner, of Oscar G. Buettner & Son, New York, is president of the association.

C. C. Allen Joins Dobbins

Dobbins Manufacturing Co., North St. Paul, Minn., manufacturers of sprayers, mop wringers and other metal specialties, have appointed C. C. Allen as their eastern sales representative. Mr. Dobbins, who will make his headquarters at Collingswood, N. J., has been with Lowell Manufacturing Co., also sprayer manufacturers, for several years.

Clorox Chemical Earnings

Clorox Chemical Co. and subsidiaries report net income of $359,141 for the year ended June 30. This equals $3.28 each on 109,613 shares of common stock, comparing with $325,313, or $2.97 a share, in the previous fiscal year.

Named for Special Research

Dr. P. N. Annand has been made special research assistant to the chief of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture. C. M. Packard will succeed him as chief of the Division of Cereal and Forage Insect Investigation. Dr. Annand will devote his entire time to unifying the bureau's research, which covers a wide and constantly growing field, and making it more effective. He has been with the bureau since 1929.

Riding the waves at the Cleveland Exposition recently with H. A. Nelson of Chemical Supply Co. of Cleveland at the helm. Mr. Nelson appears a trifle upset at the bucking progress of the craft, judging from the look on his face. The others in the party who quite evidently were taking things much more light-heartedly include, left to right, David Lynch of John Powell & Co., Chicago; John Powell, in person; Charles Campbell of John Powell & Co., Pittsburgh and Cleveland representative, and, of course, Skipper Nelson, more commonly known among his cronies on the Board of the National Association of Insecticide & Disinfectant Manufacturers as "Henry."

Pritchard Leaves Penick

Dr. Gordon Pritchard, research director of S. B. Penick & Co., New York, has severed his connection with them and is making a trip to Europe. He will return to New York at the end of October, and will stay for a short time at the Chemists' Club.

Martin & Martin Appoint

Martin & Martin, Inc. of Chicago, manufacturers of "Help" cleaner, "E-Z" stove polish and "Fast" white shoe polish, announce the appointment of Help Sales Co. as the exclusive distributor of "Help." Martin & Martin, Inc. will continue to handle the sale of "Fast" white shoe polish and "E-Z" stove polish.

Glover Signs Stipulation

H. Clay Glover Co., New York, has just signed a stipulation with the U. S. Federal Trade Commission, agreeing to discontinue use of false and misleading statements in the advertising of "Glover's" medicated soap.

To Advertise "Berlou"

Berlou Manufacturing Co., Marion, Ohio, manufacturer of "Berlou" moth proof, has appointed Jay H. Maish Co., of that city, to handle its advertising and sales promotion. Publications and direct mail will be used.

Offers Ti Tree Oil

R. F. Revson Co., New York, is now stocking Australian ti tree oil, an essential oil having unusual non-toxic and germicidal properties.

National Pest Control Assn. Meets in Memphis Oct. 25-27

THE fifth annual convention of the National Pest Control Association, formerly called the National Association of Exterminators & Fumigators, is scheduled to open at the Hotel Peabody, Memphis, Tenn., October 25 and to continue through October 27. An invitation to every member of the industry to attend has been extended by Bartlett W. Eldredge, association president. Harry J. Hammond, general chairman of the convention committee, has announced an extensive program of clinics and talks on which the principal speakers will be: Lee A. Strong, Chief of the Bureau of Entomology, U. S. Department of Agriculture; Dr. Thos. E. Snyder, Senior Entomologist, Bureau of Entomology, U. S. Department of Agriculture; Dr. L. M. Graves, Superintendent, County and City Board of Health, Memphis; Ernest R. Barber, New Orleans, and Prof. J. J. Davis, Purdue University, Lafayette, Ind.

The clinics, under the direction of Prof. J. J. Davis, will be an especially valuable and informative feature of the meeting. As a result of the great interest shown in this part of the program a year ago, more emphasis will be put on the clinics at the Memphis meeting. There will be four principal clinics: "Termites," "Rats and Mice," "Ants and Silverfish" and "Moths." Technical experts in the various field will assist Prof. Davis in conducting the clinics and in answering questions on specific problems.

The entertainment program is under the direction of Arthur Murray and includes a golf tournament for early arrivals the afternoon of Sunday, October 24. Entertainment will be provided each evening of the meeting, which will close with the "National Pest Revue" the evening of October 27. Special arrangements will be made for the entertainment of ladies attending the meeting.

Members of the convention committee include Lawrence A. McKenna, Cleveland; William O. Buettner, Brooklyn; Otto Orkin, Atlanta; Harold E. Jennings, Chicago, and Wilbur F. Smith, Pasadena. The complete program for meeting as released by the office of secretary William O. Buettner is as follows:

Bartlett W. Eldredge
President

William O. Buettner
Secretary

Dr. H. K. Steckel
Treasurer

FIFTH ANNUAL CONVENTION NATIONAL PEST CONTROL ASSN.

MONDAY, OCTOBER 25, 1937

8:30 to 9:30 A.M.—Registration
Mezzanine Floor.

9:30 A.M. — Convention Called to Order
Harry J. Hammond, general chairman of convention committee, W. P. Hammond & Son, Milwaukee.

Invocation
Dr. Chas. F. Blaisdell, Pastor of Calvary Episcopal Church.

9:35 A.M.—Greetings
Louis Kotler — Chairman Memphis Convention Committee, Orkin Exterminating Co., Memphis.

9:40 A.M.—Greetings
Joseph Hill, President, Memphis Pest Control Association; Knox-Ant Corp., Memphis.

9:45 A.M.—Address of Welcome
Honorable Watkins T. Overton, Mayor of Memphis.

10:00 A.M.—Response
Wilbur F. Smith—President Structural Pest Control Board of California; Alderman Co., Pasadena.

10:05 A.M.—Message of President
Bartlett W. Eldredge, Waltham Chemical Co., Waltham, Mass.

10:20 A.M.—Report of the Secretary
William O. Buettner, Oscar G. Buettner & Son, Brooklyn.

10:30 A.M.—Report of the Treasurer
H. K. Steckel, Tornado Mfg. Co., Columbus, Ohio.

10:40 A.M.—Address: "Health Department & Pest Control Industry"
Dr. L. M. Graves, Superintendent County & City Board of Health, Memphis.

10:55 A.M.—Committee Reports
a) Ethics—Jess M. Miller
b) Grievance—C. Norman Dold
c) Advertising — Walter M. McCloud
d) Materials, Standards, and Methods—George L. Hockenyos
e) Cooperation with American Association of Economic Entomologists —Charles Denny
f) Contract & Agreement Forms—Harold E. Jennings
g) Cost Accounting—Ed. H. Arnott
h) Recognition of Industry by Government Agencies—William O. Buettner
i) Insurance—William O. Buettner
j) National Councillor — P. Calvert Cissel
k) Technical Advisory—Dr. Alfred Weed
l) Constitution and By-Laws—Wilbur F. Smith
m) Change in National Seal — George R. Elliot
n) Auditing—Alfred Schmitthenner

12:20 P.M.—Introduction of Guests and Vistors

12:30 P.M.—Announcements & Adjournment

12:45 P.M.—Optional Luncheon

AFTERNOON

2:00 P.M.—Convention Reconvenes
Bartlett W. Eldredge, presiding.

2:05 P.M.—Address: "The Termite Problem and Recent Research"
Dr. Thomas E. Snyder, Bureau of Entomology & Plant Quarantine, U. S. Department of Agriculture.

2:45 P.M.—"Termite Clinic"
Introduction by Prof. J. J. Davis. Leaders, Wallace B. Tanner, California Termite Control Co., Holly-

wood; Jess M. Miller, J. M. Miller Pest Control Service, Hollywood; Dr. T. E. Snyder, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, New Orleans; Miss Olive Falls, Antimite Co., St. Louis; E. L. Fellman, E. L. Bruce Co., Memphis; M. L. deVietien, Reilly Tar and Chemical Co., Indianapolis.

4:30 P.M.—"Ant and Silverfish Clinic"

Leader, Wilbur F. Smith, Alderman Co., Pasadena; Prof. W. P. Flint and W. E. McCauley, Illinois Natural History Survey, Urbana, Ill.; Ernest L. Barber, Barber Laboratories, New Orleans.

5:55 P.M.—Announcements and Adjournment

EVENING

7:30 P.M.—Products Night

William O. Buettner, Leader. Manufacturers and supply houses having booth exhibit space will explain features of their displays. Other special features will include a sound film, 'Why Moths Leave Home," and "Trip of the Secretary early 1937."

TUESDAY—OCTOBER 26, 1937

9:00 A.M. — Convention Called to Order

Bartlett W. Eldredge, presiding.

9:05 A.M.—Address: "Necessity of Keeping Accurate Records in the Work of Pest Control"

Ernest R. Barber, Barber Laboratories, New Orleans.

9:40 A.M.—"Rat Clinic"

Leader, C. Norman Dold, Rose Exterminator Co., Chicago; G. C. Oderkirk, Bureau of Biological Survey, U. S. Department of Agriculture, Lafayette, Ind.; E. F. Sennewald, Sennewald Drug Co., St. Louis; C. A. Vincent-Daviss, E. I. DuPont de Nemours and Co., Wilmington; Charles Denny, Sur-Rid Products Co., St. Louis.

11:40 A.M.—Miscellaneous Papers

12:30 P.M.—Announcements & Adjournment

12:45 P.M.—Luncheon (Optional)

Talk on "Truthful Advertising," followed by general discussion.

AFTERNOON

2:00 P.M.—Convention Reconvenes

Bartlett W. Eldredge, presiding.

2:05 P.M.—"Moth Control and Moth Proofing Clinic"

Leader, Geo. L. Hockenyos, Sentinel Insect Control Laboratory, Springfield, Ill.; Dr. E. A. Back, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Washington, D. C.; Dr. R. C. Roark, Bureau of Entomology and Plant Quarantine, Washington, D. C.; Dr. Alfred Weed, John Powell Co., New York; Arthur Srebren, Associated Chemists, Inc., Chicago; Geo. M. Chapman, American Cyanamid and Chemical Corp., New York.

4:05 P.M.—Address: "Cooperation of the Bureau of Entomology with Pest Control Operators"

Lee A. Strong, Chief of Bureau of Entomology, U. S. Department of Agriculture.

4:45 P.M.—Unfinished Business—Discussion

5:30 P.M.—Announcements & Adjournment

EVENING

8:00 P.M. — Entertainment — "Pot Pourri Night"

Under direction of Arthur Murray, Chairman of Entertainment Committee.

WEDNESDAY—OCTOBER 27, 1937

9:30 A.M. — Convention Called to Order

Bartlett W. Eldredge, presiding.

9:35 A.M.—Report of "Committee on Future Conventions"

9:45 A.M.—Report of "Nominating Committee"

9:50 A.M.—Election of Officers & Directors

10:05 A.M.—General Business

a) Discussion and action on Committee Reports & Recommendations

b) Amendments to Constitution and By-Laws

c) Other New Business

d) Committee on Resolutions

12:15 P.M.—Announcements & Adjournment

AFTERNOON

2:00 P.M.—Sightseeing Trip

EVENING

7:30 P.M.—Annual Banquet

Toastmaster, Lawrence W. McKenna, President Ohio Exterminators & Fumigators Association; A. C. Exterminating Co., Cleveland.

8:45 P.M.—Remarks by President and Secretary

9:00 P.M.—Entertainment, "National Pest Revue"

Library Termite Job

Termite proofing the Cambridge Public Library at Cambridge, Mass., has just been completed by the Sanitary Maintenance Co., Boston, under the direction of N. K. Concannon and Dr. V. B. Durling, entomological consultant. According to the Cambridge records, the cost of the termite work was $1,445 with a ten-year guarantee against a recurrence of the damage. The library building was partly rebuilt and supposedly made termite-proof about three years ago at a cost of $45,000 as a P.W.A. project. The subsequent termite damage, however, badly undermined important wooden sections of the building and even extended to books on the shelves of the library, making necessary the recent work by the Boston concern.

Rose to Meet at Memphis

A number of exterminating concerns are planning individual company meetings of their various representatives in connection with the annual convention of the National Pest Control Association in Memphis, October 25, 26 and 27. Rose Exterminator Co. will have representatives of its fourteen offices present. Orkin Exterminating Co. plans a company meeting and Antimite Co. will have a conference of its licensees. These meetings will be held either before or after the regular convention sessions.

Gets Fumigation Contract

A contract has just been awarded to Oscar G. Buettner & Son, Brooklyn, covering the fumigation of furniture of all tenants moving into the new Williamsburgh Housing Project in Brooklyn. The Buettner firm has constructed two special atmospheric vaults on the premises to which all incoming furniture is transferred from the moving vans. Cyanide gas is used. Work started in September and will continue until the 1,600 new tenants have moved into the building. It was expected that 30 to 60 families could be accommodated daily. A similar contract at the Harlem Project, covering 700 families, went to Guarantee Exterminating Co., New York.

Goodrich Leaves Hudson

M. C. Goodrich, for many years associated with the insecticide trade through his position as advertising manager of H. D. Hudson Mfg. Co., Chicago sprayer manufacturers, has resigned to become advertising manager of *National Seedsman*, trade magazine. As yet no announcement has been made regarding Mr. Goodrich's successor at Hudson.

Suspend Operations

International Chemical Laboratories, 17 Cook St., Auckland, New Zealand, insecticide manufacturer, has recently suspended operations. The firm is now in liquidation.

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